INNOVATION ZONE/FLEXIBILITY APPLICATION

TUSCALOOSA CITY SCHOOLS

Date Received: March 21, 2014

Synopsis: Requests the following:
1) Allow “Flexible” Credit for career technical coursework/programs to fulfill math, science, social studies, PE LIFE, and health requirements.
2) Provide early end-of-course assessments prior to completing courses for students demonstrating mastery of required content.
3) Allow elective credit flexibility through summer, extracurricular and other types of camps/programs; and intense athletic training efforts (i.e. Red Cross lifeguard certification), etc., to count as the student’s required PE LIFE course or other electives based on crosswalks of the Alabama Course of Study standards and knowledge and skills required in the after-school or summer camp/training/experience. A district-rubric (attached) will be utilized to ensure cohesiveness and consistency for each camp and/or program submitted for elective approval.

Statute Affected: Alabama Administrative Code
290-4-2-.01
290-4-3-.02
290-3-1-.02(8)
290-3-1

Status: Approved by the Alabama State Board of Education on May 14, 2014.
Alabama State Department of Education

Innovation Zone/Flexibility Application

ALABAMA STATE BOARD OF EDUCATION

PLAN 2020

THE VISION
Every Child A Graduate –
Every Child Prepared for
College/Work/Adulthood
in the 21st Century

LEARNERS
SCHOOLS/SYSTEMS
-support systems

PROFESSIONALS

RECEIVED
MAR 21 2014
STATE SUPERINTENDENT'S OFFICE
ALABAMA DEPARTMENT OF EDUCATION
Section 1 - Applicant Information

School System: Tuscaloosa City Schools
Contact Name & Title: Dr. Elisabeth Davis, Assistant Superintendent of Curriculum and Instruction
Telephone Number: (205) 759 – 3511
E-Mail Address: edavis@tusc.k12.al.us

Number of Schools Involved: 3 high schools, Oak Hill (students attending Success Prep), and Tuscaloosa Career and Technology Academy (programs that serve high school students)
Number of Students Served/Affected by Plan: 2,817 (as of February 17, 2014)
Number of Teachers Involved/Affected by Plan: 174 (All teachers at these schools and programs will receive information on the application to enable them to support and plan for all students)
Number of Service Personnel Involved/Affected by Plan: NA

Please place a check beside the appropriate entity (ies) applying for Innovation Zone designation:

- School
- Department or Subdivision of School
- Coalition of Schools (fill out multiple listings below)
- Feeder System of Schools
- District

Please complete the chart below for the District’s leadership team that will support plan

<table>
<thead>
<tr>
<th>Name of Team Member</th>
<th>Title</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Paul McKendrick</td>
<td>Superintendent</td>
<td>Paul McKendrick</td>
</tr>
<tr>
<td>Dr. Elisabeth Davis</td>
<td>Assistant Superintendent of Curriculum and Instruction</td>
<td>Elisabeth Davis</td>
</tr>
<tr>
<td>Dr. Mike Daria</td>
<td>Assistant Superintendent of General Administration</td>
<td>Mike Daria</td>
</tr>
<tr>
<td>Robert Coates</td>
<td>Director of Secondary Education</td>
<td>Robert Coates</td>
</tr>
<tr>
<td>Shannon Bogert</td>
<td>Secondary Curriculum Specialist</td>
<td>Shannon Bogert</td>
</tr>
<tr>
<td>Kenneth Webb</td>
<td>Secondary Curriculum Specialist</td>
<td>Kenneth Webb</td>
</tr>
<tr>
<td>Richjetta Smith</td>
<td>Director of Professional Development</td>
<td>Richjetta Smith</td>
</tr>
<tr>
<td>Dr. Jeffrey Schultz</td>
<td>Coordinator of Fine Arts</td>
<td>Jeffrey Schultz</td>
</tr>
</tbody>
</table>

Please complete the chart below for each school that will be involved/affected by the plan

<table>
<thead>
<tr>
<th>School Name</th>
<th>Name of Team Member</th>
<th>Title</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central High</td>
<td>Dr. Clarence Sutton</td>
<td>Principal</td>
<td>Clarence Sutton</td>
</tr>
<tr>
<td>Oak Hill School</td>
<td>Tyrone Blocker</td>
<td>Principal</td>
<td>Tyrone Blocker</td>
</tr>
<tr>
<td>Northridge High</td>
<td>Dr. Isaac Espy</td>
<td>Principal</td>
<td>Isaac Espy</td>
</tr>
<tr>
<td>Paul W. Bryant High</td>
<td>Dr. Linda Harper</td>
<td>Principal</td>
<td>Linda Harper</td>
</tr>
<tr>
<td>Tuscaloosa Career &amp; Technology Academy</td>
<td>Kathleen Hughston</td>
<td>Principal</td>
<td>Kathleen Hughston</td>
</tr>
</tbody>
</table>

Section 2 - Abstract and Waiver Requests
Provide a project summary that briefly describes the project’s vision, goals, activities, and key features for student success that will be addressed. Please include how the proposal reflects Alabama’s PLAN 2020. Please limit the length of the abstract to the text box found on this page only.

The Tuscaloosa City Schools System continues to support and provide students with numerous opportunities to excel academically and pursue postsecondary or career interests. The development and implementation of Alabama’s PLAN 2020 has empowered the district to promote flexible alternatives for high school graduation through four-year planning and coursework that both interests students and satisfies academic content requirements for school coursework. However, there are several other innovative options that would further our opportunity to allow students to take relevant and rigorous coursework without all of the “traditional” graduation requirements. The outcomes for this request are as follows:

1.) Allow “Flexible” Credit for career technical coursework/programs that fulfill math, science, social studies, elective, PE LIFE, and health requirements.

2.) Provide early End-of-Course assessments prior to completing courses for students demonstrating mastery of required content.

3.) Allow elective credit flexibility through summer, extracurricular and other types of camps/programs; and intense athletic training efforts (i.e. Red Cross lifeguard certification), etc. to count as the student’s required PE LIFE course or other electives based on crosswalks of the Alabama Course of Study standards and knowledge and skills required in the after school or summer camp/training/experience. A district rubric (attached) will be utilized to ensure cohesiveness and consistency for each camp and/or program submitted for elective approval.

“Flexible” Credit provides personalized educational options for students in which they will identify, acquire, and demonstrate mastery in a given career technical content area to earn graduation credit. The district’s Tuscaloosa Career and Technology Academy (TCTA) provides students with the opportunity to explore and gain skills relating to their career interests. Eleven college and career academies are offered on site including nine that include course requirements that if granted flexibility, would fulfill traditional course requirements. The teachers and administration at TCTA have taken their course standards and content and crosswalked it to traditional high school courses. The correlation crosswalk documents are attached to the application and provide a side-by-side comparison of standards required for course completion at TCTA programs, along with any other information that may be needed to fulfill traditional course requirements for mastery of course content.

Early End-of-Course (EOC) assessments for students who demonstrate initial mastery of required content prior to completing coursework provide students with the opportunity to take additional coursework previously not afforded to them due to standard course trajectories. By allowing Tuscaloosa City Schools’ students to take approved Alabama State Department of Education’s End-of-Course assessments at flexible times, students will be able to have a valid and reliable assessments that demonstrate student mastery of content and the opportunity to take additional rigorous course offerings that they may not have been able to take due to a tradition 4 X 4 schedule of instruction.

District approved extracurricular opportunities that meet course standards would be allowed to count as a PE LIFE credit or for an elective credit (based on application information). For example, our system has students who participate in dance, music, competitive swimming and equestrian teams, and numerous other activities in which the students devote a significant amount of time. In addition, Tuscaloosa City Schools has a partnership with the Tuscaloosa Sister Cities in which many of our students are allowed to travel to either Japan or Germany. Students spend a year preparing for their summer exchange trips and are required to take classes in which they learn the language and culture of the country. Additionally, there are students who receive Red Cross training for lifeguard certification (which includes CPR certification) or other training required to serve as a camp counselor, etc. We propose utilizing the attached documents to assist with this process:

✔ TCS Physical Education LIFE Application & Agreement,
✔ TCS Physical Education LIFE Log for Documenting Clock Hours, and
✔ TCS Student Application for Flexible Credit (attached at the end of the Innovation/Flexibility application)

We believe this program reflects Plan 2020 because it promotes rigorous and relevant learning environments for students and allows students to be challenged academically and pursue areas relevant to their interests.

Ultimately, it will produce college-and-career ready graduates that have experienced relevant coursework or programs
that have prepared them for the real world without remediation courses or additional training before gainful employment.

## Waiver Requests

Indicate the specific type(s) of policy or code that prohibit or constrain the project that you wish to request a waiver from:

- [ ] Specific waiver requested of ALSDE policy
- [x] Specific waiver requested of Alabama Administrative Code (AAC) statute

<table>
<thead>
<tr>
<th>ALSDE Policy Waiver Request (Specify memo, etc., outlining policy)</th>
<th>Alabama Administrative Code (AAC) Statute (Specify AAC Rule No., etc.)</th>
<th>Impact of the Waiver (What will the waiver enable the school to do differently, etc.?)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AAC 290-4-2-.01 and 290-4-2-.02</td>
<td>End-of-course assessments will be given prior to completing the course in its entirety or students who exhibit mastery of course standards. This will require Tuscaloosa City Schools to have a flexible assessment plan.</td>
</tr>
<tr>
<td></td>
<td>AAC 290-3-1-.02(8)</td>
<td>This waiver application would allow the system to award the Alabama High School Diploma without the traditional 4X4 curriculum requirements</td>
</tr>
<tr>
<td></td>
<td>AAC 290-3-1</td>
<td>Upon completion of agreements with local colleges, Early College students will be able to begin taking college courses in grade 9 and at their current age when they are eligible to enter the ninth grade. In addition, TCS students will be allowed to take and earn targeted college credits without first meeting minimum college testing, enrollment, and GPA requirements. Students will be awarded credit upon mastery of required content, rather than seat time through testing or successful completion of college courses. One hour of college credit earned shall be the equivalent of .334 high school credits.</td>
</tr>
<tr>
<td></td>
<td>AAC 290-3-1</td>
<td>With approval of the Tuscaloosa City Schools Superintendent and through the use of a district rubric, substitutions for some courses will be allowed for “traditional” ALSDE courses. This will be allowed only if the students complete the required number of credits in the corresponding content areas.</td>
</tr>
</tbody>
</table>

### REQUIREMENTS THAT CANNOT BE WAIVED

- Those imposed by federal law
- Those related to the health and safety of students or employees
• Those imposed by ethics laws
• Those imposed by the Alabama Child Protection Act of 1999, Title 16, Chapter 22A, Code of Alabama 1975
• Those imposed by open records or open meetings laws
• Those related to financial or academic reporting or transparency
• Those designed to protect the civil rights of students or employees
• Those related to the state retirement system or state health insurance plan

**NOT ALLOWABLE FOR WAIVER**

• May not compensate an employee at an annual amount that is less than the amount the employee would otherwise be afforded through the State Minimum Salary Schedule
• May not involuntarily remove any rights or privileges acquired by any employee under the Students First Act of 2011, Title 16, Chapter 24C, Code of Alabama 1975
• May not deny any right or privilege granted to a new employee pursuant to the Students First Act of 2011
• May not authorize the formation of a charter school

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**Section 3- Vision and Needs Assessment**

**Creative Vision for the Project**

<table>
<thead>
<tr>
<th>1. What is the purpose and expected outcome of this project (include expected outcomes for students)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.) Students will receive core course credit(s) for career technical courses that directly correlate with traditional course requirements (correlation crosswalk charts are attached to the application).</td>
</tr>
<tr>
<td>2.) Students will have the opportunity to take End-of-Course assessments to show mastery of content PRIOR to the completion of the course. The receipt of credits allows students to accelerate to sequential courses and/or participate in Early College coursework to provide challenging content and/or early completion of high school.</td>
</tr>
<tr>
<td>3.) Students will be allowed to submit extracurricular camps/programs, intense athletic training efforts (lifeguard certification), etc. to count as the student's required PE LIFE credit or other elective based on crosswalks of the Alabama Course of Study standards and knowledge and skills required in the after school or summer camp/training/experience through the use of a district rubric.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Explain how the school's or school district's current data influenced the need for the project described in Question 1 above?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Tuscaloosa Career and Technology Academy has a current enrollment of 803 students. Despite the popularity of the academies and the local need for technical skilled workers, numerous students are unable to attend due to the stringent requirements of the traditional 4 X 4 curriculum. Flexible Credit for career technical courses would allow more students to be able to participate in the academies, resulting in more students graduating from high school with career-ready skills and the experience to succeed in career readiness training or other post-secondary careers.</td>
</tr>
</tbody>
</table>

In past years, many students have asked to take additional courses via our current acceleration policy. This policy requires students to take locally approved End-of-Course assessments. By allowing valid and reliable (ACT QualityCore, ACCESS distance learning (credit acceleration assessments if available), or A+ Anywhere Learning) End-of-Course assessments to be given at flexible times, the district will be assured that students earning benchmark scores or higher mastered course standards through a rigorous assessment process.

There are numerous rigorous programs that TCS students participate in throughout the school year, in addition to the traditional classroom requirements and often extracurricular activities, clubs, sports, and others. As an example, each year approximately 20 students from our system participate in a cultural exchange program with either Japan or Germany. This program is very rigorous, immersing students in the language and cultural of the country. Students are required to
participate in language classes and serve as delegates for Tuscaloosa. The time devoted to and the requirements of this program exceed the course requirements of a traditional foreign language course. By allowing this program to count as a foreign language elective, the students participating will have the opportunities to take advanced foreign language coursework through Early College or Dual Enrollment. Similarly, a significant amount of students participate in strenuous competitive trainings and programs such as dance, equestrian, swimming, lifeguard, etc. outside of the regular school day. By allowing these activities to count as a PE LIFE credit, the students would be available to take other coursework such as career technical or advanced courses. All programs/activities/camps, etc. that would qualify for this PE LIFE or elective credits would be provided to schools and parents; however, a formalized process (outlined in attached documents) will be utilized to illustrate how the program met the standards required for the elective as well as how the student illustrates mastery of the standards. Along with the traditional programs provided to students in Tuscaloosa such as the Sister Cities student exchange, students will be allowed to submit others for approval. Prior approval must be established before a student can earn flexible credit for the opportunity requested.

Although TCS has seen an increase in the system’s graduation rate by 6 percent over the past few years, we currently still have a graduation rate that is lower than the state’s rate at 80 percent. For the 2013 school year, the TCS graduation rate was 71 percent.

Additionally, one of our high schools is on the state-identified list of “Priority Schools” and the other two high schools are on the state-identified list as “Focus Schools.” As a result, these innovative approaches must be established to help all three of our high schools increase student achievement and continue to increase graduation rates.

3. How is this project linked to Alabama’s PLAN 2020? How is this project linked to the school’s or district’s strategic plan?

Tuscaloosa City Schools is committed to the vision of Alabama’s PLAN 2020 of “Every Child a Graduate—Every Graduate Prepared for College/Work/Adulthood in the 21st Century.”

Whereas PLAN 2020 states that “all graduates possess the knowledge and skills needed to enroll and success in credit-bearing first year courses at two or four year college, trade school, technical school, without the need for remediation,” similarly our district’s strategic plan has a goal for the Academics Strategic Area that strives to “continually improve academic and enrichment through quality instruction for all students, as evidenced through multiple measures.” PLAN 2020 grants school systems “flexibility to innovate and create 21st century learning environments to meet the individual and collective needs of their students.” With this flexibility, Tuscaloosa City Schools will support students as they take more career technical coursework and be afforded innovative and relevant opportunities for acceleration, Early College, or early graduation.

4. How is the school’s or district’s project connected to best practice and current research in reference to raising student achievement and preparing students to be college- and career-ready?

The Tuscaloosa City Schools System has devoted the past two years to providing teachers and administrators with purposeful professional development and instructional coaching support to help teachers and students transition to the full implementation of Alabama’s College and Career Ready Standards. Through the implementation of these standards, students are able to receive basic foundational skills needed to succeed in college and careers.

In Elliot Washor and Charles Mojkowski’s book Leaving To Learn (2013), they provide an alarming statistic. “One in thirty-one adult American’s is now in the correctional system—the highest rate on earth” (p. xi). As a result, schools and systems must implement individualized instruction that support student personal interests and professional goals. This flexibility request supports the innovative approach that TCS is seeking through this innovation application. Educators must improve their educational programs while decreasing the drop-out rates through the implementation of rigorous and relevant curriculum that prepares them for college and career readiness. “Billions of dollars are spent on education every year;
there are endless initiatives and countless debates on raising standards and improving results. Even so, the problems of disaffection and disengagement roll on relentlessly, and the dropout rate continues to haunt and perplex politicians on both sides" (p. xi). Unfortunately, many students are leaving school to learn outside of the traditional school setting. We believe that our proposed innovative approach would directly increase student achievement and prepare students to be college-and career-ready because of the following:

1. Students will no longer be restricted from exploring various career interests through 11 academy options, from being limited to one high school pathway (AP, career technical, athletics, etc.) in isolation, or from completing a full technical course pathway if "flexible" credit is awarded for some of the traditional high school courses that have the same standards being taught within the course or program at TCTA. Students will be able to fulfill diploma requirements and attend Tuscaloosa Career and Technology Academy simultaneously.

2. CTE concentrators or completers will finish coursework that provides them with certification needed for careers or skills needed to go directly into college or career following high school. This will allow students to bypass post-secondary technical training and immediately enter the job force after graduating high school.

3. Through the acceleration afforded by taking End-of-Course assessments early, students will be able to take additional Advanced Placement (AP) classes and/or earn college credit through the University of Alabama's or Stillman College's Early College or Dual Enrollment. The students will illustrate mastery of content through the following reliable and valid assessments:
   a. ACT QualityCore EOCs (benchmark scores will be required for the credit to be approved), and
   b. The A+ AnyWhere Learning system, a scientific research-based learning instructional program and assessment package, is designed from scientifically-based research. Currently TCS utilizes this software program for credit recovery instruction and assessment and for our local acceleration policy assessment requirements. If approved, the student would be required to make an 87 or higher to have the credit approved. This requirement is consistent with our current policy that also requires this score if the student is seeking to accelerate. The transcript currently states the grade with a (CBA) beside it to indicate "Credit By Assessment." This sign can also be used for this process to indicate an EOC was taken.
   c. ACCESS Acceleration or other Distance Learning Assessments (assessments provided through the course content online will be utilized and students will have to score an 87 or higher to receive credit for the course)

4. By allowing flexibility in awarding elective credits, students will have opportunities to take additional coursework based on their interests and college/career preparatory needs.

5. How will this project be supported and monitored for implementation by the district?

   This project will be supported and monitored in multiple ways. They include the following:
   - Four-Year Planning: Through comprehensive Four-Year Planning plans, students will meet with counselors and district level curriculum and instruction team members to develop course trajectories that are designed according to students' college and career plans.
   - Counselors will evaluate extracurricular that potentially meet elective coursework will be scored via an established rubric that evaluates accorded to alignment of course standards.
   - End-of-Course assessment data: Local schools and district curriculum and instruction team members will analyze data and encourage students making benchmark scores to seek accelerated instructional paths.
   - Transcript analysis: Curriculum team members will work with local school counselors to annually audit transcripts to ensure consistency and accuracy for credits.
   - Number of career technical concentrators and completers will be analyzed each year and compared to previous years.
<table>
<thead>
<tr>
<th>TimeLine</th>
<th>Activities</th>
<th>Objectives</th>
<th>Goals (SMART)</th>
</tr>
</thead>
<tbody>
<tr>
<td>June/July 2014</td>
<td>TOA Principal Kathleen Hugen</td>
<td>1. Students will receive flexible credit for:</td>
<td>Increase by 5 percent the number of students who complete the Advanced Placement, technical, and academic courses.</td>
</tr>
<tr>
<td></td>
<td>Kwan Webb, Secondary Curriculum Specialist</td>
<td>- Learning program or ACCESS assessments.</td>
<td>increase by 10 percent the number of students enrolled in Advanced Placement (AP) courses.</td>
</tr>
<tr>
<td></td>
<td>Sharon Bogue, Director of Secondary Education</td>
<td>- Mastery of content will be illustrated through either ACT/SAT Qualifying scores or ACT End-Of-Course Qualifying scores.</td>
<td>College and career readiness programs will complete more than one quarter of the objectives that are measurable.</td>
</tr>
<tr>
<td></td>
<td>Deborah Davis, Assistant Superintendent of Curriculum &amp; Instruction</td>
<td>- Students will be able to demonstrate mastery of content.</td>
<td>High school, secondary, and intermediate school staff will work to develop activities for each objective that are: create a clear timeline, focus, and measure success.</td>
</tr>
<tr>
<td></td>
<td>Train counselors and teachers on program requirements.</td>
<td>- All students will meet graduation requirements.</td>
<td>Low for additional months will present annually.</td>
</tr>
<tr>
<td></td>
<td>- Program requirements for assessments not found in UCA could be: ACT/College Board SAT/PSAT, GED UCA</td>
<td>- The number of students who complete Advanced Placement, technical, and academic courses will increase by 5 percent.</td>
<td>Increase by 10 percent the number of students enrolled in Advanced Placement (AP) courses.</td>
</tr>
</tbody>
</table>

**GOALS:**

- To prepare TCS students for college and career readiness through innovative course opportunities and programs that provide rigorous and relevant coursework related to personal interests and professional goals.
Section 5 - Project Evaluation and Sustainability

<table>
<thead>
<tr>
<th>Year</th>
<th>Minimum of 5% each</th>
<th>Graduation rates by a school and system</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>4. To increase local</td>
<td></td>
</tr>
</tbody>
</table>

3. To decrease the opportunity for students to earn flexible credits.

4. To increase local graduation rates by a school and system.
Through multiple partnerships with outside agencies including the University of Alabama, Stillman College, Shelton State Community College, and the Tuscaloosa Chamber of Commerce and a dedicated technical program and administrative staff, we will have multiple avenues for support.

2. How will this innovation project be sustained?

4. Any combination of the above options

3. Pursuing an educational option and/or an individually approved option

2. Taking out or showing mastery of course content without taking the course in its entirety

1. Successfully completing coursework

This innovation project will be sustained with continued support to the local school from the Central office staff. This Flex Credit Plan goes into effect beginning with the 2014-2015 school year. It will allow students to earn graduation credit through one of the following options:
Appendix

Record of Commitment

Use this form to report staff, parent, and public commitment regarding the innovation application and plan. Use a separate form for each school.

School: Central High School
School District: Tuscaloosa City Schools

Notice of Meeting(s) (Date provided to faculty, department, parents, community, etc.): 2/18/2014 D 12; Overview to Board Members (2-18-14), Work Session (3-4-14)

*Meeting Date(s): High School Principals' Meeting (2-17-14), Local School Faculty Meeting (TBD), System Curriculum and Instruction Team Meeting (2-18-14), and High School Counselors (2-21-14)

Parent Representatives:
Name: Paul Sanders, Sr. 
Name: Dennis Conner
Name: Tammy Simmons

We certify that this application/plan is supported by the school's PTA/PTO.

Continuous Improvement Leadership Team Representatives:
Name: Teresa Jones
Name: Donnette Alexander
Name: Jennifer Hines

Record of Public Discussion and Input

District and School Representatives:
Name: Robert Coates, Director of Secondary Instruction
Name: Clarene Sutton
Name: Elisabeth Davis

We certify that multiple opportunities were provided for public discussion and input of this plan.

*Record of sign-in sheets and input from various groups and meetings should be kept at the district level.
Appendix

Record of Commitment

Use this form to report staff, parent, and public commitment regarding the innovation application and plan. Use a separate form for each school.

School: Paul W. Bryant High School
School District: Tuscaloosa City Schools
Notice of Meeting(s) (Date provided to faculty, department, parents, community, etc.): Local School (2-28-14), Overview to Board Members (2-18-14), Work Session (3-4-14)
*Meeting Date(s): High School Principals’ Meeting (2-17-14), Local School Faculty Meeting (TBD), System Curriculum and Instruction Team Meeting (2-18-14), and High School Counselors (2-21-14)

Parent Representatives:
Name: Michele Coley
Name: Felicia Gross
Name: Audrey Ford

We certify that this application/plan is supported by the school’s PTA/PTO.

Continuous Improvement Leadership Team Representatives:
Name: Linda Harper
Name: Keith Bryant
Name: Lydia Edwards

Record of Public Discussion and Input

District and School Representatives:
Name: Shannon Bogert, ELA Curriculum Specialist
Name: Elisabeth Davis, Ed.D., for Curriculum
Name: Sandra Aldridge, Ed.D., Federal Programs

We certify that multiple opportunities were provided for public discussion and input of this plan.

*Record of sign-in sheets and input from various groups and meetings should be kept at the district level.
Appendix

Record of Commitment

Use this form to report staff, parent, and public commitment regarding the innovation application and plan. Use a separate form for each school.

School: Northridge High School
School District: Tuscaloosa City Schools
Notice of Meeting(s) (Date provided to faculty, department, parents, community, etc.): 3/5/2014
Overview to Board Members (2-18-14), Work Session (3-4-14)
*Meeting Date(s): High School Principals’ Meeting (2-17-14), Local School Faculty Meeting (TBD), System Curriculum and Instruction Team Meeting (2-18-14), and High School Counselors (2-21-14)

Parent Representatives:
Name: Cwimoko Amendo
Signature: [Signature]
Name: Barbara W. Ray
Signature: [Signature]
Name: Donna Wright
Signature: [Signature]

We certify that this application/plan is supported by the school’s PTA/PTO.

Continuous Improvement Leadership Team Representatives:
Name: Isaac P. Espy, Jr.
Signature: [Signature]
Name: Sonya Blunt
Signature: [Signature]
Name: Marcie Irvin
Signature: [Signature]

Record of Public Discussion and Input

District and School Representatives:
Name: Kenneth Webb, Math Curriculum Specialist
Signature: [Signature]
Name: Anthony Harris, Graduation Coach
Signature: [Signature]
Name: Sherri Shuttlesworth, Asst. Principal
Signature: [Signature]

We certify that multiple opportunities were provided for public discussion and input of this plan.

*Record of sign-in sheets and input from various groups and meetings should be kept at the district level.
Appendix

Record of Commitment

Use this form to report staff, parent, and public commitment regarding the innovation application and plan. Use a separate form for each school.

School: Tuscaloosa Career and Technology Academy
School District: Tuscaloosa City Schools
Notice of Meeting(s) (Date provided to faculty, department, parents, community, etc.): 2/20/2014
Overview to Board Members (2-18-14), Work Session (3-4-14)
*Meeting Date(s): High School Principals’ Meeting (2-17-14), Local School Faculty Meeting (TBD), System Curriculum and Instruction Team Meeting (2-18-14), and High School Counselors (2-21-14)

Parent Representatives:
Name: [Signature]
Name: [Signature]
Name: [Signature]
We certify that this application/plan is supported by the school’s PTA/PTO.

Continuous Improvement Leadership Team Representatives:
Name: [Signature]
Name: [Signature]
Name: [Signature]

Record of Public Discussion and Input

District and School Representatives:
Name: Dr. Elisabeth Davis, Assistant Superintendent
Name: Kathleen W. Staglone, Principal
Name: [Signature]
Name: [Signature]
Name: [Signature]
We certify that multiple opportunities were provided for public discussion and input of this plan.

*Record of sign-in sheets and input from various groups and meetings should be kept at the district level.
Appendix

Record of Commitment

Use this form to report staff, parent, and public commitment regarding the innovation application and plan. Use a separate form for each school.

School: Oak Hill/Success Prep Program
School District: Tuscaloosa City Schools

Notice of Meeting(s) (Date provided to faculty, department, parents, community, etc.): 2/18/2014
Overview to Board Members (2-18-14), Work Session (3-4-14)

*Meeting Date(s): High School Principals’ Meeting (2-17-14) Local School Faculty Meeting (TBD), System Curriculum and Instruction Team Meeting (2-18-14), and High School Counselors (2-21-14)

Parent Representatives:
Name: Tonya V. Hudson
Signature: Tonya V. Hudson
Name: Runda J. Juba
Signature: Runda J. Juba
Name: Lynne Nelton
Signature: Lynne Nelton

We certify that this application/plan is supported by the school’s PTA/PTO.

Continuous Improvement Leadership Team Representatives:
Name: Allison M. Papaio
Signature: Allison M. Papaio
Name: Jennifer Underwood
Signature: Jennifer Underwood
Name: Erica Minn
Signature: Erica Minn

Record of Public Discussion and Input

District and School Representatives:
Name: Richetta Smith, Director of Professional Development Signature: Richetta Smith
Name: Elisabeth Davis, Ed.D., Asst. Superintendent
Signature: Elisabeth Davis
Name: Tyrone Blocker
Signature: Tyrone Blocker

We certify that multiple opportunities were provided for public discussion and input of this plan.

*Record of sign-in sheets and input from various groups and meetings should be kept at the district level.
Local Education Agency Report of Support or Concerns

Use this form to report the school or district and superintendent support or concerns, or both, about the innovation to the principal and faculty. Use a separate form for each school.

School: Central High School
School District: Tuscaloosa City Schools
Date of School/Department/Subdivision Receipt of Application: February 17, 2014
Date of Regularly Scheduled Board of Education Meeting: February 18, 2014 and March 4, 2018

Local School Board of Education Members:

Name of President: Lee Garrison
Name of Vice President: Earnestine Tucker
Name of Member: Erskine Simmons
Name of Member: Harry Lee
Name of Member: Cason Kirby
Name of Member: Marvin Lucas
Name of Member: James Minyard
Name of Member: Norman Crow

Support:
Full support from faculty and staff

Concerns:
None stated during the discussions

(Report of the Local Education Agency must be forwarded to school/school district for submission to Alabama State Board of Education with the application/plan).
Local Education Agency Report of Support or Concerns

Use this form to report the school or district and superintendent support or concerns, or both, about the innovation to the principal and faculty. Use a separate form for each school.

School: Paul W. Bryant High School
School District: Tuscaloosa City Schools
Date of School/Department/Subdivision Receipt of Application: February 17, 2014
Date of Regularly Scheduled Board of Education Meeting: February 18, 2014 and March 4, 2018

Local School Board of Education Members:
Name of President: Lee Garrison
Name Vice President: Earnestine Tucker
Name of Member: Erskine Simmons
Name of Member: Harry Lee
Name of Member: Cason Kirby
Name of Member: Marvin Lucas
Name of Member: James Minyard
Name of Member: Norman Crow

Support:
Teachers were very supportive and excited to hear that students may have an option to take end-of-course assessments to opt out of a class where mastery of standards already exists. Teachers were supportive of option for classes to replace electives that overlap in content/skill areas. They also expressed that it seems to support TCTA opportunities.

Concerns:
Teachers want more discussion on how the changes will impact current scheduling options.

(Report of the Local Education Agency must be forwarded to school/school district for submission to Alabama State Board of Education with the application/plan).
Local Education Agency Report of Support or Concerns

Use this form to report the school or district and superintendent support or concerns, or both, about the innovation to the principal and faculty. Use a separate form for each school.

School: Northridge High School
School District: Tuscaloosa City Schools
Date of School/Department/Subdivision Receipt of Application: February 17, 2014
Date of Regularly Scheduled Board of Education Meeting: February 18, 2014 and March 4, 2018

Local School Board of Education Members:

Name of President: Lee Garrison
Name Vice President: Earnestine Tucker
Name of Member: Erskine Simmons
Name of Member: Harry Lee
Name of Member: Cason Kirby
Name of Member: Marvin Lucas
Name of Member: James Minyard
Name of Member: Norman Crow

Support:
Northridge High School’s faculty and PTA support the flexibility proposal.

Concerns:
It would be better to award credit for Physical Science because that is a standard level science course that surveys Chemistry and Physics.

(Report of the Local Education Agency must be forwarded to school/school district for submission to Alabama State Board of Education with the application/plan).
Community Partner Support

Use this form to document community organization/agency support and partnership for the innovation plan/project. Use a separate form for each community partner.

School/Schools: All schools listed in application

School District: Tuscaloosa City Schools

Date(s) of School/School District/Community Partner Dialogues: 2-28-14

Name of Community Organization/Agency: Stillman College

Contact Person: Anthony L. Holloman

Contact Person E-mail Address: aholloman@stillman.edu

Contact Person Telephone Number: 205. 247. 8164

Contact Person Address: St. llman College Batchelor Hall 207

Explain the community organization's/agency's commitment to the Plan/Project:

Support for Programs
Articulation agreements

List the resources and contributions (not monetary) that the organization/agency is making to this Plan/Project:

Articulation agreements
Program related supports
Professional development (Publics, etc.)

Agency Representative (Name) Peter Edmund Mrllet
Title: Interim President
Signature: [Signature]
Community Partner Support

Use this form to document community organization/agency support and partnership for the innovation plan/project. Use a separate form for each community partner.

School/Schools: All listed in application

School District: Tuscaloosa City Schools

Date(s) of School/School District/Community Partner Dialogues: 2-27-14

Name of Community Organization/Agency: Shelton State Community College

Contact Person: Amanda D. Harbison

Contact Person E-mail Address: aharbison@sheltonstate.edu

Contact Person Telephone Number: 205-391-5878

Contact Person Address: 9500 Old Greensboro Road Tuscaloosa, Alabama 35405

Explain the community organization's/agency's commitment to the Plan/Project:

Partnership to provide students involved in the Central Scholars Program to be enrolled at the high school and Shelton State concurrently. These students will gain early exposure to the college learning environment.

List the resources and contributions (not monetary) that the organization/agency is making to this Plan/Project:

Advising assistance for courses
College Knowledge Information
Basic Study Skill Training
Free tutoring

Agency Representative (Name) Amanda D. Harbison

Title: Associate Dean of Enrollment Services

Signature: Amanda D. Harbison
Community Partner Support

Use this form to document community organization/agency support and partnership for the innovation plan/project. Use a separate form for each community partner.

School/Schools: All listed in the application

School District: Tuscaloosa City Schools

Date(s) of School/School District/Community Partner Dialogues: 2-27-14 and 2-28-14

Name of Community Organization/Agency: The University of Alabama

Contact Person: Chris Spencer

Contact Person E-mail Address: chspencer@ua.edu

Contact Person Telephone Number: (205) 348-7374

Contact Person Address: 900 Anna Ave., Box 870372 Tuscaloosa, AL 35487

Explain the community organization's/agency's commitment to the Plan/Project:

The University of Alabama Mechanical Engineering Staff has submitted a proposal to the National Science Foundation. The proposed project will target schools in Tuscaloosa, Greene, Perry, Pickens, and Sumter counties. The two major goals of the project are to increase the number of women and minorities attending college and to build sustainable partnerships between school districts and the University of Alabama.

List the resources and contributions (not monetary) that the organization/agency is making to this Plan/Project:

Dr. Marcus Ashford, who is an Associate Professor in the Mechanical Engineering Department, will be responsible for leading this Science, Technology, Engineering, and Math-focused initiative. The University of Alabama has also committed senior personnel from the College of Education and the Division of Community Affairs to this initiative. University of Alabama students will also be available to assist with this initiative.

Agency Representative (Name): Christopher H. Spencer

Title: Director of Community Development

Signature: [Signature]
Community Partner Support

Use this form to document community organization/agency support and partnership for the innovation plan/project. Use a separate form for each community partner.

School/Schools: All listed in the application

School District: Tuscaloosa City Schools 2/27/2014

Date(s) of School/School District/Community Partner Dialogues: 2/28/2014

Name of Community Organization/Agency: Chamber of Commerce of West Alabama

Contact Person: Loo Whitfield Contact Person E-mail Address: loo@tuscaloosachamber.com

Contact Person Telephone 205-391-0563

Contact Person Address: The Chamber of Commerce of West Alabama 2201 Jack Warner Parkway; Building C Tuscaloosa, AL 35401

Explain the community organization’s/agency’s commitment to the Plan/Project:

As the major consumer of the product produced by the local school systems, the Chamber of Commerce of West Alabama is fully committed to work with the systems to improve the quality of public K-12 education and to ensure that Tuscaloosa schools reach and exceed state averages in student performance. Allowing flexible credit for career technical courses and electives and providing opportunities for accelerated and flexible end-of-course assessments will help increase the number of high school graduates who are ‘college and career ready’, thus providing area employers with a better prepared workforce. Therefore, the Chamber is committed to continue to serve as the liaison between business and education and to fully support the proposed flexibility and innovative alternatives suggested in this document.

List the resources and contributions (not monetary) that the organization/agency is making to this Plan/Project:

The Chamber of Commerce serves as a primary connection between the business and education communities, ensuring that all levels of educational curriculum meet the existing and future workforce skill sets demanded by business and industry. Through the Adopt-A-School Program business and education partnerships work to strengthen, enhance and enrich the quality of education in the schools by utilizing the resources and talents of the business community. Partner companies and employees invest their time, talents and resources in classrooms to initiate activities that encourage students and enrich their educational experiences.

Businesses who currently partner with one of the three high schools include Randall-Reilly Publishing; ARD Logistics, Alabama, LLC; The Radiology Clinic; Capstone Bank; Midtown Village. Additionally, Eberspaecher; McAbee Construction; Almon Associates; Premier Service Company; Walker Associates; Mercedes-Benz U.S. International, Inc serve as partners for specific programs at Tuscaloosa Career Technical Academy. The Chamber of Commerce is actively engaged in providing opportunities for area employers to interact with students, creating a climate of interaction between businesses and schools. Through the annual school counselor industry tour and career technical teacher’s tour the Chamber continues to create awareness of training needs and availability of high paying technical jobs in the Tuscaloosa area. As teachers and counselors visit local industries, they learn firsthand what is needed to direct students toward success in an ever-growing and ever-changing workforce.

Agency Representative: Loo Whitfield

Title: Director of Education and Workforce Development, The Chamber of Commerce of West Alabama

Signature: Loo Whitfield
Other Related Documents
• Public Hearing Notification

• Board Resolution

• Anticipated Timeline

• Physical Education LIFE Application & Agreement

• Physical Education LIFE Application Log for Documenting Clock Hours

• Student Application for Flexible Credit

• Correlation Documents
FOR IMMEDIATE RELEASE

MORE INFORMATION, CONTACT: LESLEY BRUINCON, APR PUBLIC RELATIONS COORDINATOR 205.759.3549 lbruino@tusc.k12.al.us

TCS to Hold Public Hearing

The Tuscaloosa City Schools will provide an opportunity for public input and discussion on Tuscaloosa City School’s draft Innovation Zone/Flexibility Plan that will be submitted to the Alabama State Department of Education later this month. At the regularly scheduled board meeting on March 4 at 6 p.m., citizens may speak to this issue by signing up prior to the meeting. A copy of the plan can be found on the TCS website at www.tuscaloosacityschools.com or by clicking here. The meeting will be held at the Tuscaloosa Career & Technology Academy lecture hall located at 2800 Martin Luther King Jr. Boulevard.

###
Regular Board Meeting
Agenda
Tuesday, March 4, 2014
6:00 p.m.
Lecture Hall of
Tuscaloosa Career & Technology Academy

1. Call to Order
   Mr. Garrison

2. Period of Silence and Pledge of Allegiance
   Mr. Garrison

3. Adoption of the Agenda
   Mr. Garrison

4. Approve the February 18, 2014 Regular Board Meeting Minutes
   And Approve the February 25, 2014 Called Board Student Hearing Meeting Minutes
   Mr. Garrison

5. Informational Reports from Superintendent and Executive Administrative Staff
   Mr. Garrison

   Dr. Paul McKendrick, Superintendent:
   a. Recognize the Paul W. Bryant High School Track Team
   Mr. Garrison

   Dr. Elisabeth Davis, Asst. Superintendent Curriculum & Instruction:
   b. Receive/Discuss SIG Evaluation Updates
   Mr. Garrison

   Dr. Mike Daria, Asst. Superintendent General Administration: None
   Ms. Billie K. Wingfield, Executive Director of Human Resource: None
   Mr. Garrison

   Mr. Ed LaVigne, Chief School Financial Officer:
   c. Report from the Chief School Financial Officer on non-routine, unusual transactions
      without legal authorization or transactions not in compliance with Fiscal Management
      Policies of the Board.
   Mr. Garrison

   Mr. Jeff Johnson, Executive Director of Facilities:
   d. Receive written update on active construction projects within school system
   Mr. Garrison

6. Introduction of Motions, Resolutions for First Reading
   Mr. Johnson

   a. Discuss/Approve Alabama State Department of Education Innovation Zone/ Flexibility
      Application Resolution
   Dr. Davis

   b. Discuss/Approve Lawn Maintenance Contract Bid #2014-03
   Mr. Johnson

1 of 2 pages
7. Public Comments on Non-agenda items

8. Consent Agenda
   a. Discuss/Approve (2nd Reading) Make-Up Days for January 29-30, February 11, 2014 and April 29, 2014 making it a full day of instruction

9. Regular Agenda Items for Final Adoption
   a. Discuss/Approve Superintendent's Recommendations Regarding Changes in Personnel

10. Old Business Reports and Updates

11. General Announcements
    • March 10, 2013 at 6:00 p.m. city councilwoman, Sonja McKinstry and TCS District 7 board representative Erskine Simmons will hold a Community Meeting at SV-E/M

12. Adjourn

Mr. Garrison
Dr. Daria
Ms. Wingfield
Mr. Garrison

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Future Meeting Dates and School/Central Office Closing Information:

- March 4, 2014 Personnel Board Committee Meeting at 12:00 p.m. in bookroom at Board of Education
- March 4, 2014 Regular Board Meeting at 6:00 p.m. in the Lecture Hall at Tuscaloosa Career & Technology Academy
- March 11, 2014 Called Board Student Hearing Meeting at 6:00 p.m. in the Regions Room of the Board of Education
- March 18, 2014 Regular Board Meeting at 6:00 p.m. in the Lecture Hall at Tuscaloosa Career & Technology Academy
- March 24-28, 2014 SPRING BREAK-ALL SCHOOLS AND CENTRAL OFFICE CLOSED

2 of 2 pages
Board of Education

Regular Board Meeting
March 4, 2014
6:00 p.m.

PUBLIC COMMENTS
SIGN IN SHEET

The board appreciates the input of citizens about the educational process and welcomes comments related to agenda items as well as general public concerns. Citizens desiring to address the board or superintendent concerning an agenda item should sign-up prior to the meeting and indicate the item they wish to address. Each individual will be recognized according to Section 5, Public Input of the Tuscaloosa City Board of Education resolution establishing rules of procedure for conducting meetings. Each person addressing the board shall limit remarks to five (5) minutes, unless further time is granted by the presiding officer with consent of the board.

<table>
<thead>
<tr>
<th>NAME</th>
<th>AGENDA ITEM NUMBER</th>
<th>GENERAL COMMENTS</th>
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<td>CONNA SURRAGE</td>
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RESOLUTION

WHEREAS, the Tuscaloosa City School Board of Education will pursue an Alabama State Department of Education (ALSDE) Innovation Zone/Flexibility contract; and

WHEREAS, the Tuscaloosa City School Board of Education will give full support in pursuing the ALSDE Innovation Zone/Flexibility contract; and

WHEREAS, assurances that the board will offer consistency in leadership and commitment to state standards, assessment, and academic rigor will be provided; and

WHEREAS, evidence of the opportunity for full discussion and public input to include a public hearing will be submitted; and

WHEREAS, the innovation/flexibility proposal will be posted on the school system’s website to allow accessibility to the general public;

NOW BE IT RESOLVED that the Tuscaloosa City School Board of Education will follow the submission and approval process for the Alabama State Department of Education Innovation Zone/Flexibility Application.

Done this 4th March of 2014.

Lee Garrison
Board Chair

James Minyard
Board Member, District 1

Norman Crow
Board Member, District 3

Harry G. Lee
Board Member, District 5

Erskine Simmons
Board Member, District 7

Earnestine Tucker
Board Member, District 2

Cason Kirby
Board Member, District 4

Marvin Lucas
Board Member, District 6
<table>
<thead>
<tr>
<th>February 2014</th>
<th>March 2014</th>
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<tbody>
<tr>
<td>*Submit Letter of Intent to ALSDE</td>
<td>*Hold Public Hearing (March 4)</td>
</tr>
<tr>
<td>*Draft Application</td>
<td>*Board adopted local resolution (March 4)</td>
</tr>
<tr>
<td>*Begin sharing application with</td>
<td>*Complete and submit final application</td>
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<tr>
<td>various stakeholder groups</td>
<td>with all supporting documents (by March 31)</td>
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<td>*Share draft application to board</td>
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<td>members</td>
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<tr>
<th>April 2014</th>
<th>May 2014</th>
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<tbody>
<tr>
<td>*Begin 60-day timeline</td>
<td>*Continue 60-day timeline</td>
</tr>
<tr>
<td>*Develop checklists and forms</td>
<td>*Finalize public relations strategies</td>
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<td>to assist principals, counselors,</td>
<td>with Lesley Bruinton to educate</td>
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<td>and parents understand the</td>
<td>students and parents on options</td>
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<td>purpose, process, and courses</td>
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<td>that apply to this flexibility</td>
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<td>application.</td>
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<tr>
<td>*Begin drafting informational</td>
<td>*Hang posters in schools</td>
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<tr>
<td>brochure</td>
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<tr>
<td>*Establish contact person at</td>
<td>*Publicize application process</td>
</tr>
<tr>
<td>each school for parents to</td>
<td>*Hold community meeting</td>
</tr>
<tr>
<td>contact with questions</td>
<td>*Finalize FAQ brochure to go home with</td>
</tr>
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<td></td>
<td>students and parents</td>
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<td></td>
<td>*Establish cutoff date for applications (if application is approved)</td>
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<tr>
<th>June 2014</th>
<th>July 2014</th>
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<tbody>
<tr>
<td>*If approved, meet with high</td>
<td>*Principals and counselors will send</td>
</tr>
<tr>
<td>school principals and</td>
<td>any applications to assistant</td>
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<tr>
<td>counselors to discuss</td>
<td>superintendent of curriculum for</td>
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<tr>
<td>logistics and begin</td>
<td>committee approval. Upon review, a</td>
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<tr>
<td>implementation planning for</td>
<td>letter will be sent to the parent and</td>
</tr>
<tr>
<td>each high school</td>
<td>a copy of the application decision to</td>
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<td></td>
<td>the school for any schedule changes</td>
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<td></td>
<td>that need to be made.</td>
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<tr>
<td>*Assign a C &amp; I team member</td>
<td>*A date will be provided for any student</td>
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<tr>
<td>per grade level to assist</td>
<td>that has submitted applications for</td>
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<td>with applications, etc.</td>
<td>early EOCs to take the EOC at the local</td>
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<tr>
<td>during the summer</td>
<td>school (this will help with scheduling).</td>
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<td>*Begin accepting applications</td>
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<td>(to be sent to assistant</td>
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<td>superintendent of curriculum's</td>
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<td>office)</td>
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<tr>
<td>*Investigate EOCs from ACT</td>
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<td>QualityCore and ACCESS (other</td>
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<td>than Algebra I and English 10</td>
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<td>) and process to access them</td>
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<td>at the beginning of the</td>
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<td>semester</td>
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<td>August 2014</td>
<td>September 2014</td>
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<tr>
<td>*One final opportunity will be</td>
<td>*Monitor students who participate</td>
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<td>provided for early EOCs during</td>
<td>in flexibility option</td>
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<tr>
<td>the first week of school to</td>
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<td>determine possible schedule</td>
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<td>changes.</td>
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<tr>
<th>October 2014</th>
<th>November 2014</th>
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<tbody>
<tr>
<td>*Plan for full-educational</td>
<td>*Counselor and graduation coach</td>
</tr>
<tr>
<td>campaign for students and</td>
<td>meeting to discuss logistics of</td>
</tr>
<tr>
<td>parents during 2015-2016 4-year</td>
<td>4-year planning in relation to</td>
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<tr>
<td>planning process</td>
<td>the flexibility options for</td>
</tr>
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<td></td>
<td>students</td>
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<thead>
<tr>
<th>December 2014</th>
<th>January 2015</th>
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<tbody>
<tr>
<td>*Begin annual KUDER updates and</td>
<td>*Begin 4-year planning</td>
</tr>
<tr>
<td>assessments for all students in</td>
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<tr>
<td>grades 6, and 8 - 11</td>
<td>*A review of all transcripts (of</td>
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<td>students that received any</td>
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<td>flexibility or took an EOC early)</td>
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<td>(Note: this will occur with the</td>
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<td>C &amp; I partner, counselor, and</td>
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<td>principal AND will occur in June</td>
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<td>also)</td>
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<td>*Begin accepting applications for</td>
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<td>2015-2016 school year for</td>
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<td>flexibility options (through</td>
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<td>spring registration process)</td>
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<td>*Develop and communicate a cut-off</td>
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<td></td>
<td>date for application submission</td>
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Anticipated Timeline
# TCS Physical Education LIFE Application & Agreement

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Last</th>
<th>First</th>
<th>Middle</th>
<th>Student ID#</th>
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<tbody>
<tr>
<td>School:</td>
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<tr>
<td>Sport &amp;/OR Name of Sponsoring Facility/Agency:</td>
<td>Coach’s/Instructor’s Email Address &amp; Phone Number:</td>
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<td>(please attach a copy of the facility/agency’s description of offerings, etc. to the agreement)</td>
<td>Coach/Instructor(s) Certification or Credentials:</td>
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<tr>
<td>Name of Coach/Instructor:</td>
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<td>Student’s reason(s) for waiver request:</td>
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<td>□ Additional time for career-related courses</td>
<td>□ Passion/Enjoyment for sport/event</td>
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<tr>
<td>□ Additional time for advanced courses</td>
<td>□ Personal interests</td>
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<tr>
<td>□ Dual Enrollment</td>
<td>□ To gain skills needed for personal achievement</td>
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<td>□ Scholarship opportunities</td>
<td>□ Other ____________________</td>
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<tr>
<td>□ Early graduation</td>
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## DETAILED SCHEDULE

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<thead>
<tr>
<th>Weekday</th>
<th>Beginning Time</th>
<th>Ending Time</th>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
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<tr>
<td>Tuesday</td>
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<tr>
<td>Sunday</td>
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</tbody>
</table>

1 Application must be submitted in the spring with Course Registration Forms to local school counselor. Final approval will be determined by the Assistant Superintendent of Curriculum prior to the end of the school year (May). A letter will be sent to the local school and to the parents with the determination of application.
## PERFORMANCE EVALUATION CRITERIA

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Points Available</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attendance</strong></td>
<td>Minimum of 75 total hours of physical activity &amp; a weekly log to be turned in each 9-weeks to assigned PE teacher at local school.</td>
<td>100% Attendance X 5 points = 500 points</td>
<td>TBD by weekly log</td>
</tr>
<tr>
<td><strong>Citizenship</strong></td>
<td>Positive attitude, leadership, perseverance, commitment, and self-motivation</td>
<td>100 points</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Ability/Performance Task</strong></td>
<td>Ongoing formative checks (growth in skills) &amp; Final evaluation (could be formal performance, competition, or informal assessment)</td>
<td>50% = Ongoing checks &amp; 50 % Final evaluation = 100 points</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Alabama Course of Study Standards</strong></td>
<td>Skill development, cognitive development, social development, and physical activity and health (See ACOS)</td>
<td>Embedded in prior three categories</td>
<td>NA</td>
</tr>
</tbody>
</table>

## AGREEMENT OF UNDERSTANDING

It is my understanding that the above-named student is applying for a Physical Education LIFE waiver and that the student must participate in a physical education activity, under professional supervision, for a minimum of 75 hours of physical activity (calculated at approximately 25 minutes per day at five days a week at 36 weeks).

If the student is approved for the PE LIFE waiver, the student must participate in a physical education program meeting the requirements as designated to meet the following: physical activity time requirements, regular attendance, commitment and skill improvement, and performance evaluation criteria (outlined in the above application).

---

Application must be submitted in the spring with Course Registration Forms to local school counselor. Final approval will be determined by the Assistant Superintendent of Curriculum prior to the end of the school year (May). A letter will be sent to the local school and to the parents with the determination of application.
As a professional instructor/coach, I agree that the following standards will be met and that I am responsible for overseeing and completing all necessary documentation and final performance evaluation. I understand that it must be submitted to the local school PE teacher at least 1 week prior to the end of the grading period.

**Signature of Coach/Instruction:** ___________________________ Date: __________

**Student Signature:** ___________________________ Date: __________

**Parent Signature:** ___________________________ Date: __________

**Counselor Signature:** ___________________________ Date: __________

**Principal Signature:** ___________________________ Date: __________

**Date Submitted to Assistant Superintendent of C & I:** ___________________________

Approved: __________ Not Approved: __________

---

Application must be submitted in the spring with Course Registration Forms to local school counselor. Final approval will be determined by the Assistant Superintendent of Curriculum prior to the end of the school year (May). A letter will be sent to the local school and to the parents with the determination of application.
TCS Physical Education LIFE Log for Documenting Clock Hours  
(Minimum 75 Hours of Physical Activity)

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Last</th>
<th>First</th>
<th>Middle</th>
<th>School:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport &amp;/OR Name of Sponsoring Facility/Agency:</td>
<td>Name of Coach/Instructor:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coach’s/Instructor’s Email Address or Contact Number:</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
<th># Minutes</th>
<th>Supervised By</th>
<th>Purpose of Session (performance, practice, specific skill, competition, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Totals:

Coach’s Signature: ___________________________ Date: _____
Parent/Guardian’s Signature: ___________________________ Date: _____
Student’s Signature: ___________________________ Date: _____

To be completed by coach/instructor and submitted to local school PE teacher at least one week prior to the end of each 9-week grading period.
TCS Student Application for Flexible Credit

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Last</th>
<th>First</th>
<th>Middle</th>
<th>Student ID#</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choose One Credit Flexibility Option:

- Credit by End-of-Course Assessments
- Credit by Course Substitution

<table>
<thead>
<tr>
<th>Semester Requesting Flexibility Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>Both Semesters</td>
</tr>
</tbody>
</table>

Name and Course # of course for which you are seeking Flexibility Waiver:

Amount of Credit:

- .5
- 1

Reason for Flexible Credit Request:

- Additional time for career related courses
- Additional time for advanced courses
- Dual Enrollment
- Scholarship opportunities
- Early graduation
- Personal interests
- To gain skills needed for personal achievement
- Community service opportunity
- Cultural explorations
- Other ______________________

1 Application must be submitted in the spring with Course Registration Forms to local school counselor. Final approval will be determined by the Assistant Superintendent of Curriculum prior to the end of the school year (May). A letter will be sent to local school and to parents with determination of application.
# Informational Rubric to Ensure Flexible Credit Aligns to Alabama's Plan 2020 Requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Acceptable</th>
<th>Not Acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Standards</td>
<td>Standards align with Alabama College and Career Ready Standards.</td>
<td>Not all Alabama College and Career Ready Standards are covered.</td>
</tr>
<tr>
<td>Rigor</td>
<td>Coursework is rigorous and aligned with Levels 3 and 4 of Webb's Depth of Knowledge.</td>
<td>Coursework is not rigorous and aligned with Levels 1 and 2 of Webb's Depth of Knowledge.</td>
</tr>
<tr>
<td>Relevance</td>
<td>Students are given opportunities to participate in coursework aligned with real world explorations and to prepare for college and career experiences.</td>
<td>Coursework does not provide opportunities for college and career readiness.</td>
</tr>
</tbody>
</table>

Note: This rubric will be used by Tuscaloosa City Schools’ teachers and counselors to ensure course requests are aligned to standards, rigor, and relevance to prepare for college and career readiness.

**Grading Criteria Guidelines for Transcripts**
- Credits obtained by ACT QualityCore End-of-Course assessments must meet ALSDE determined benchmarks (Note: Benchmark score indicates an A for transcript).
- Credits obtained by A+ Anywhere Learning assessments or ACCESS distance learning (credit acceleration assessments) will follow the TCS acceleration policy guidelines for transcript grade submission.

**Student Signature: ___________________________**  **Date: __________**
**Parent Signature: ___________________________**  **Date: __________**
**Counselor Signature: _________________________**  **Date: __________**
**Principal Signature: _________________________**  **Date: __________**

**Date Submitted to Assistant Superintendent of C & I:** ___________________

**Approved: __________**  **Not Approved: __________**

---

Application must be submitted in the spring with Course Registration Forms to local school counselor. Final approval will be determined by the Assistant Superintendent of Curriculum prior to the end of the school year (May). A letter will be sent to local school and to parents with determination of application.
## Correlation Crosswalk Documents

<table>
<thead>
<tr>
<th>Academy</th>
<th>TCTA Course</th>
<th>Traditional Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>PLTW Principles of Engineering</td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical Science</td>
</tr>
<tr>
<td>Medical Sciences</td>
<td>1. Foundations of Health Science</td>
<td>Human Anatomy and Physiology</td>
</tr>
<tr>
<td></td>
<td>2. Therapeutic Services</td>
<td>Forensic Science</td>
</tr>
<tr>
<td></td>
<td>3. Health Science Internship</td>
<td>Life Science Elective</td>
</tr>
<tr>
<td>Finance</td>
<td>Business Finance</td>
<td>Economics</td>
</tr>
<tr>
<td>Finance</td>
<td>Accounting</td>
<td>Algebraic Connections</td>
</tr>
<tr>
<td>Information Technology (IT)</td>
<td>Multimedia Design</td>
<td>Graphic Arts/Arts and Design</td>
</tr>
<tr>
<td>Information Technology (IT)</td>
<td>Multimedia Publications</td>
<td>Graphic Arts /Arts and Design</td>
</tr>
<tr>
<td>Mechatronics (Electronics Systems and Robotics)</td>
<td>Alternating Current and Direct Current OR Electrical Technologies 1</td>
<td>Algebraic Connections</td>
</tr>
<tr>
<td>Mechatronics (Electronics Systems and Robotics)</td>
<td>Alternating Current and Direct Current OR Electrical Technologies 1</td>
<td>Physical Science</td>
</tr>
<tr>
<td>Mechatronics (Electronics Systems and Robotics)</td>
<td>Introduction to Robotics</td>
<td>Physics</td>
</tr>
<tr>
<td>Public Safety and Law</td>
<td>Emergency Medical Services</td>
<td>Health</td>
</tr>
<tr>
<td>Public Safety and Law</td>
<td>Principles of Public Service Introduction to Fire Science</td>
<td>PE LIFE</td>
</tr>
<tr>
<td>Academy</td>
<td>TCTA Course</td>
<td>Traditional Course</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Engineering</td>
<td>PLTW Principles of Engineering</td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical Science</td>
</tr>
</tbody>
</table>
## Principles of Engineering (PLTW) to Physics Correlation

<table>
<thead>
<tr>
<th>Alabama Course Of Study- Physics (Objectives)</th>
<th>Principles of Engineering</th>
</tr>
</thead>
</table>
| 1.) Explain linear, uniform circular, and projectile motions using one- and two-dimensional vectors.  
  * Explaining the significance of slope and area under a curve when graphing distance-time or velocity-time data  
  Example: slope and area of a velocity-time curve giving acceleration and distance traveled  
  * Describing forces that act on an object  
  Example: drawing a free-body diagram showing all forces acting on an object and resultant effects of friction, gravity, and normal force on an object sliding down an inclined plane | Lesson 2.1 Statics  
Lesson 2.2 Material Properties  
Lesson 2.3 Material Testing  
Lesson 2.4 Design Problem – Materials and Structures |
| 2.) Define the law of conservation of momentum.  
  * Calculating the momentum of a single object  
  * Calculating momenta of two objects before and after collision in one-dimensional motion | Lesson 4.1 Statics  
Lesson 4.2 Kinematics |
| 3.) Explain planetary motion and navigation in space in terms of Kepler's and Newton's laws. | Lesson 2.1 Statics  
Lesson 2.2 Material Properties  
Lesson 4.2 Kinematics |
4.) Describe quantitative relationships for velocity, acceleration, force, work, power, potential energy, and kinetic energy.

| Lesson 1.1 Mechanisms |
| Lesson 1.2 Energy Sources |
| Lesson 1.3 Energy Applications |
| Lesson 1.4 Design Problem – Energy and Power |
| Lesson 2.1 Statics |
| Lesson 2.2 Material Properties |
| Lesson 2.3 Material Testing |
| Lesson 2.4 Design Problem – Materials and Structures |
| Lesson 3.2 Fluid Power |
| Lesson 3.3 Design Problem – Control Systems |
| Lesson 4.2 Kinematics |

5.) Explain the concept of entropy as it relates to heating and cooling, using the laws of thermodynamics.

- Using qualitative and quantitative methods to show the relationship between changes in heat energy and changes in temperature

| Lesson 1.2 Energy Sources |
| Lesson 1.3 Energy Applications |
| Lesson 1.4 Design Problem – Energy and Power |

6.) Describe wave behavior in terms of reflection, refraction, diffraction, constructive and destructive wave interference, and the Doppler effect.

- Explaining reasons for differences in speed, frequency, and wavelength of a propagating wave in varying materials
- Describing uses of different components of the electromagnetic spectrum, including radio waves, microwaves, infrared radiation, visible light, ultraviolet radiation, X rays, and gamma radiation
- Demonstrating particle and wave duality
- Describing the change of wave speed in different media

<p>| Lesson 1.3 Energy Applications |
| Lesson 1.4 Design Problem – Energy and Power |
| Lesson 3.2 Fluid Power |
| Lesson 3.3 Design Problem – Control Systems |</p>
<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Related Lessons</th>
</tr>
</thead>
</table>
| 7.)    | Describe properties of reflection, refraction, and diffraction.           | **Lesson 1.3 Energy Applications**  
**Lesson 1.4 Design Problem – Energy and Power** |
|        | Examples: tracing the path of a reflected light ray, predicting the formation of reflected images through tracing of rays |                                                                                 |
|        | • Demonstrating the path of light through mirrors, lenses, and prisms     |                                                                                 |
|        |   Example: tracing the path of a refracted light ray through prisms using Snell's law |                                                                                 |
|        | • Describing the effect of filters and polarization on the transmission of light |                                                                                 |
| 8.)    | Summarize similarities in the calculation of electrical, magnetic, and gravitational forces between objects. | **Lesson 1.2 Energy Sources**  
**Lesson 1.3 Energy Applications**  
**Lesson 1.4 Design Problem – Energy and Power** |
|        | • Determining the force on charged particles using Coulomb's law         |                                                                                 |
| 9.)    | Describe quantitative relationships among charge, current, electrical potential energy, potential difference, resistance, and electrical power for simple series, parallel, or combination direct current (DC) circuits. | **Lesson 1.2 Energy Sources**  
**Lesson 1.4 Design Problem – Energy and Power** |
Principles Of Engineering (POE) Course Description

Principles Of Engineering (POE) is a high school-level survey course of engineering. The course exposes students to some of the major concepts that they will encounter in a postsecondary engineering course of study. Students have an opportunity to investigate engineering and high tech career POE gives students the opportunity to develop skills and understanding of course concepts through activity-, project-, and problem-based (APPB) learning. Used in combination with a teaming approach, APPB learning challenges students to continually hone their interpersonal skills, creative abilities, and problem solving skills based upon engineering concepts. It also allows students to develop strategies to enable and direct their own learning, which is the ultimate goal of education.

To be successful in POE, students should be concurrently enrolled in college preparatory mathematics and science. Students will employ engineering and scientific concepts in the solution of engineering design problems. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community.

Principles Of Engineering is one of the foundation courses in the Project Lead The Way high school engineering program. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

The course of study includes:

- Mechanisms
- Energy Sources
- Energy Applications
- Machine Control
- Fluid Power
- Statics
- Material Properties
- Material Testing
- Statistics
- Kinematics
Principles Of Engineering (POE) Detailed Outline

Unit 1: Energy and Power (49 days)

Lesson 1.1 Mechanisms (15 days)

Understandings:

1. Engineers and engineering technologists apply math, science, and discipline-specific skills to solve problems.
2. Engineering and engineering technology careers offer creative job opportunities for individuals with a wide variety of backgrounds and goals.
3. Technical communication can be accomplished in oral, written, and visual forms and must be organized in a clear and concise manner.
4. Most mechanisms are composed of gears, sprockets, pulley systems, and simple machines.
5. Mechanisms are used to redirect energy within a system by manipulating force, speed, and distance.
6. Mechanical advantage ratios mathematically evaluate input work versus output work of mechanisms.

Knowledge and Skills

It is expected that students will:

- Differentiate between engineering and engineering technology.
- Conduct a professional interview and reflect on it in writing.
- Identify and differentiate among different engineering disciplines.
- Measure forces and distances related to mechanisms.
- Distinguish between the six simple machines, their attributes, and components.
- Calculate mechanical advantage and drive ratios of mechanisms.
- Design, create, and test gear, pulley, and sprocket systems.
- Calculate work and power in mechanical systems.
- Determine efficiency in a mechanical system.
- Design, create, test, and evaluate a compound machine design.
Lesson 1.2 Energy Sources (11 days)

**Understandings:**

1. Energy source classifications include nonrenewable, renewable, and inexhaustible.
2. Energy source processes include harnessing, storing, transporting, and converting.
3. Energy often needs to be converted from one form to another to meet the needs of a given system.
4. An understanding of work, energy, and power is required to determine system efficiency.
5. An understanding of the basics of electricity requires the understanding of three fundamental Understandings of voltage, current, and resistance.
6. The atomic structure of a material determines whether it is a conductor, an insulator, or a semiconductor.

**Knowledge and Skills**

It is expected that students will:

- Identify and categorize energy sources as nonrenewable, renewable, or inexhaustible.
- Create and deliver a presentation to explain a specific energy source.
- Summarize and reflect upon information collected during a visit to a local utility company.
- Define the possible types of power conversion.
- Calculate work and power.
- Demonstrate the correct use of a digital multimeter.
- Calculate power in a system that converts energy from electrical to mechanical.
- Determine efficiency of a system that converts an electrical input to a mechanical output.
- Calculate circuit resistance, current, and voltage using Ohm’s law.
- Understand the advantages and disadvantages of parallel and series circuit design in an application.

Lesson 1.3 Energy Applications (10 days)

**Understandings:**

1. Energy management is focused on efficient and accessible energy use.
2. System energy requirements must be understood in order to select the proper energy source.

3. Energy systems can include multiple energy sources that can be combined to convert energy into useful forms.

4. Hydrogen fuel cells create electricity and heat through an electrochemical process that converts hydrogen and oxygen into water.

5. Solar cells convert light energy into electricity by using photons to create electron flow.

6. Thermodynamics is the study of the effects of work, thermo energy, and energy on a system.

7. Thermo energy can transfer via convection, conduction, or radiation.

8. Material conductivity, resistance, and energy transfer can be calculated.

**Knowledge and Skills**

It is expected that students will:

- Test and apply the relationship between voltage, current, and resistance relating to a photovoltaic cell and a hydrogen fuel cell.
- Experiment with a solar hydrogen system to produce mechanical power.
- Design, construct, and test recyclable insulation materials.
- Test and apply the relationship between R-values and recyclable insulation.
- Complete calculations for conduction, R-values, and radiation.

**Lesson 1.4 Design Problem – Energy and Power (13 days)**

**Understandings:**

1. Design problems can be solved by individuals or in teams.

2. Engineers use a design process to create solutions to existing problems.

3. Design briefs are used to identify the problem specifications and to establish project constraints.

4. Teamwork requires constant communication to achieve the desired goal.

5. Design teams conduct research to develop their knowledge base, stimulate creative ideas, and make informed decisions.

**Knowledge and Skills**

It is expected that students will:

- Brainstorm and sketch possible solutions to an existing design problem.
- Create a decision-making matrix for a design problem.
• Select an approach that meets or satisfies the constraints provided in a design brief.
• Create a detailed pictorial sketch or use 3D modeling software to document the best choice, based upon the design team’s decision matrix.
• Present a workable solution to the design problem.

Unit 2: Materials and Structures (40 days)

Lesson 2.1 Statics (14 Days)

Understandings:

1. Laws of motion describe the interaction of forces acting on a body.
2. Structural member properties including centroid location, moment of inertia, and modulus of elasticity are important considerations for structure design.
3. Static equilibrium occurs when the sum of all forces acting on a body are equal to zero.
4. Applied forces are vector quantities with a defined magnitude, direction, and sense, and can be broken into vector components.
5. Forces acting at a distance from an axis or point attempt or cause an object to rotate.
6. In a statically determinate truss, translational and rotational equilibrium equations can be used to calculate external and internal forces.
7. Free body diagrams are used to illustrate and calculate forces acting upon a given body.

Knowledge and Skills

It is expected that students will:

• Create free body diagrams of objects, identifying all forces acting on the object.
• Mathematically locate the centroid of structural members.
• Calculate moment of inertia of structural members.
• Differentiate between scalar and vector quantities.
• Identify magnitude, direction, and sense of a vector.
• Calculate the X and Y components given a vector.
• Calculate moment forces given a specified axis.
• Use equations of equilibrium to calculate unknown forces.
• Use the method of joints strategy to determine forces in the members of a statically determinate truss.
Lesson 2.2 Material Properties (11 Days)

Understandings:

1. Materials are the substances with which all objects are made.
2. Materials are composed of elements and area categorized by physical and chemical properties.
3. Materials consist of pure elements. Compounds and mixtures and are typically classified as metallic, ceramic, organic, polymeric, and composite.
4. Material properties including recyclability and cost are important considerations for engineers when choosing appropriate materials for a design.
5. Material selection is based upon mechanical, thermal, electromagnetic, and chemical properties.

Knowledge and Skills

It is expected that students will:

- Investigate specific material properties related to a common household product.
- Conduct investigative non-destructive material property tests on selected common household products. Property testing conducted to identify continuity, ferrous metal, hardness, and flexure.
- Calculate weight, volume, mass, density, and surface area of selected common household product.
- Identify the manufacturing processes used to create the selected common household product.
- Identify the recycling codes.
- Promote recycling using current media trends.

Lesson 2.3 Material Testing (10 Days)

Understandings:

1. Engineers utilize a design process and mathematical formulas to solve and document design problems.
2. Material testing aids in determining a product’s reliability, safety, and predictability in function.
3. Engineers perform destructive and non-destructive tests on material specimens for the purpose of identifying and verifying the properties of various materials.
4. Material testing provides a reproducible evaluation of material properties.
5. Tensile testing data is used to create a test sample stress strain curve.
6. Stress strain data points are used to identify and calculate sample material properties including elastic range, proportional limit, modulus of elasticity, elastic limit, resilience, yield point, plastic deformation, ultimate strength, failure, and ductility.

Knowledge and Skills

It is expected that students will:

- Utilize a five-step technique to solve word problems.
- Obtain measurements of material samples.
- Tensile test a material test sample.
- Identify and calculate test sample material properties using a stress strain curve.

Lesson 2.4 Design Problem – Materials and Structures (5 days)

Understandings:

1. Design problems can be solved by individuals or in teams.
2. Engineers use a design process to create solutions to existing problems.
3. Design briefs are used to identify the problem specifications and establish project constraints.
4. Teamwork requires constant communication to achieve the desired goal.
5. Design teams conduct research to develop their knowledge base, stimulate creative ideas, and make informed decisions.

Knowledge and Skills

It is expected that students will:

- Brainstorm and sketch possible solutions to an existing design problem.
- Create a decision making matrix for the design problem.
- Select an approach that meets or satisfies the constraints given in a design brief.
- Create a detailed pictorial sketch or use 3D modeling software to document the best choice, based upon your team’s decision matrix.
- Present a workable design solution.

Unit 3: Control Systems (46 days)

Lesson 3.1 Machine Control (16 days)

Understandings:
1. Flowcharts provide a step by step schematic representation of an algorithm or process.

2. Control systems are designed to provide consentient process control and reliability.

3. Control system protocols are an established set of commands or functions typically created in a computer programming language.

4. Closed loop systems use digital and analog sensor feedback to make operational and process decisions.

5. Open loop systems use programming constants such as time to make operational and process decisions.

**Knowledge and Skills**

It is expected that students will:

- Create detailed flow charts utilizing a computer software application.
- Create control system operating programs utilizing computer software.
- Create system control programs that utilize flowchart logic.
- Choose appropriate inputs and output devices based on the need of a technological system.
- Differentiate between the characteristics of digital and analog devices.
- Judge between open and closed loop systems in order to choose the most appropriate system for a given technological problem.
- Design and create a control system based on given needs and constraints.

**Lesson 3.2 Fluid Power (15 days)**

**Understandings:**

1. Fluid power systems are categorized as either pneumatic, which utilizes gas, or hydraulic, which utilizes liquid.

2. Fluid power is possible because in a system of confined fluid, pressure acts equally in all directions.

3. The most basic components of all fluid power systems include a reservoir or receiver, a pump or compressor, a valve, and a cylinder.

4. Fluid power systems are designed to transmit force over great distances, multiply an input force, and increase the distance that an output will move.

5. Laws about the behavior of fluid systems and standard conventions for calculating values within fluid systems aid in the design and understanding of such systems.

6. Standard schematic symbols and conventions are used to communicate fluid power designs.

**Knowledge and Skills**

It is expected that students will:
• Identify devices that utilize fluid power.
• Identify and explain basic components and functions of fluid power devices.
• Differentiate between the characteristics of pneumatic and hydraulic systems.
• Distinguish between hydrodynamic and hydrostatic systems.
• Design, create, and test a hydraulic device.
• Design, create, and test a pneumatic device.
• Calculate values in a fluid power system utilizing Pascal’s Law.
• Distinguish between pressure and absolute pressure.
• Distinguish between temperature and absolute temperature.
• Calculate values in a pneumatic system, utilizing the perfect gas laws.
• Calculate flow rate, flow velocity, and mechanical advantage in a hydraulic system.

Lesson 3.3 Design Problem – Control Systems (15 days)

Understandings:

1. Design problems can be solved by individuals or in teams.
2. Engineers use a design process to create solutions to existing problems.
3. Design briefs are used to identify the problem specifications and to establish project constraints.
4. Teamwork requires constant communication to achieve the desired goal.
5. Design teams conduct research to develop their knowledge base, stimulate creative ideas, and make informed decisions.

Knowledge and Skills

It is expected that students will:

• Brainstorm and sketch possible solutions to an existing design problem.
• Create a decision-making matrix for a design problem.
• Select an approach that meets or satisfies the constraints provided in a design brief.
• Create a detailed pictorial sketch or use 3D modeling software to document the best choice, based upon the design team’s decision matrix.
• Present a workable solution to the design problem.
Unit 4: Statistics and Kinematics (30 days)

Lesson 4.1 Statistics (5 days)

Understandings:

1. Engineers use statistics to make informed decisions based upon established principles.
2. Visual representations of data analyses allow for easy distribution and understanding of data.
3. Statistics is based upon both theoretical and experimental data analysis.

Knowledge and Skills

It is expected that students will:

- Calculate the theoretical probability that an event will occur.
- Calculate the experimental frequency distribution of an event occurring.
- Apply the Bernoulli process to events that only have two distinct possible outcomes.
- Apply AND, OR, and NOT logic to probability.
- Apply Bayes’ theorem to calculate the probability of multiple events occurring.
- Create a histogram to illustrate frequency distribution.
- Calculate the central tendency of a data array, including mean, median, and mode.
- Calculate data variation, including range, standard deviation, and variance.

Lesson 4.2 Kinematics (10 Days)

Understandings:

1. When working with bodies in motion, engineers must be able to differentiate and calculate distance, displacement, speed, velocity, and acceleration.
2. When air resistance is not taken into account, released objects will experience acceleration due to gravity, also known as freefall.
3. Projectile motion can be predicted and controlled using kinematics equations.
4. When a projectile is launched, velocity in the x direction remains constant; whereas, with time, the velocity in the Y direction in magnitude and direction changes due to gravity.

Knowledge and Skills

It is expected that students will:

- Calculate distance, displacement, speed, velocity, and acceleration from data.
- Design, build, and test a vehicle that stores and releases potential energy for propulsion.
- Calculate acceleration due to gravity given data from a free fall device.
- Calculate the X and Y components of a projectile motion.
- Determine the angle needed to launch a projectile a specific range given the projectile's initial velocity.
Showing Results for:
Course: Principles Of Engineering
Units: 1, 2, 3 & 4
Common Core State Standards for Mathematical Practice (HS)

Common Core State Standards for Mathematical Practice (HS)

Number and Quantity

Quantities
-Reason Quantitatively And Use Units To Solve Problems.

L1.1, L1.4, L2.2, L2.3, L2.4, L4.2
1. Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. (N.Q.1)
L1.1, L1.4, L2.3, L2.4, L4.2
2. Define appropriate quantities for the purpose of descriptive modeling. (N.Q.2)
L1.1, L1.4, L2.2, L2.3, L3.3, L4.2
3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (N.Q.3)

The Real Number System
-Extend The Properties Of Exponents To Rational Exponents.

L4.2
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents. (N.RN.2)

Vector And Matrix Quantities
-Represent And Model With Vector Quantities.

L4.2
1. (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., \( v \), \(|v|\), \(|v|\), \( v \)). (N.VM.1)
L4.2
2. (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point. (N.VM.2)
L4.2
3. (+) Solve problems involving velocity and other quantities that can be represented by vectors. (N.VM.3)
Algebra

Seeing Structure In Expressions
-Interpret The Structure Of Expressions

L1.1, L2.3, L4.2
1. Interpret expressions that represent a quantity in terms of its context. (A.SSE.1)

L1.1, L2.3, L4.2
1.a. Interpret parts of an expression, such as terms, factors, and coefficients. (A.SSE.1.a)

L1.1, L2.3, L4.2
1.b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)^n as the product of P and a factor not depending on P. (A.SSE.1.b)

Creating Equations
-Create Equations That Describe Numbers Or Relationships

L1.1
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. (A.CED.1)

L1.1, L4.2
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm’s law V = IR to highlight resistance R. (A.CED.4)

L4.2
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. (A.CED.3)

Reasoning With Equations And Inequalities
-Solve Equations And Inequalities In One Variable

L1.1, L4.2
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. (A.REI.3)

L4.2
4. Solve quadratic equations in one variable. (A.REI.4)

Functions

Linear, Quadratic, And Exponential Models
-Construct And Compare Linear, Quadratic, And Exponential Models And Solve Problems

L1.1
1.b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. (F.LE.1.b)
Trigonometric Functions
-Model Periodic Phenomena With Trigonometric Functions

L4.2
7. (+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.* (F.TF.7)

Geometry

Modeling With Geometry
-Apply Geometric Concepts In Modeling Situations

L1.1, L2.2
1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* (G.MG.1)

L1.1, L4.2
3. Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).* (G.MG.3)

L2.2
2. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* (G.MG.2)

Geometric Measurement And Dimension
-Explain Volume Formulas And Use Them To Solve Problems

L2.2
3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* (G.GMD.3)

-Visualize Relationships Between Two-Dimensional And Three-Dimensional Objects

L2.2
4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. (G.GMD.4)

Similarity, Right Triangles, And Trigonometry
-Define Trigonometric Ratios And Solve Problems Involving Right Triangles

L4.2
6. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. (G.SRT.6)

L4.2
8. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.* (G.SRT.8)

Statistics and Probability
Interpreting Categorical And Quantitative Data
-Summarize, Represent, And Interpret Data On A Single Count Or Measurement Variable

L4.1
1. Represent data with plots on the real number line (dot plots, histograms, and box plots). (S.ID.1)

L4.1, L4.2
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. (S.ID.2)

L4.1
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). (S.ID.3)

L4.1
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. (S.ID.4)

Making Inferences And Justifying Conclusions
-Understand And Evaluate Random Processes Underlying Statistical Experiments

L4.1
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population. (S.IC.1)

L4.1
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model? (S.IC.2)

-Make Inferences And Justify Conclusions From Sample Surveys, Experiments, And Observational Studies

L4.1
4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling. (S.IC.4)

Conditional Probability And The Rules Of Probability
-Understand Independence And Conditional Probability And Use Them To Interpret Data

L4.1
1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not"). (S.CP.1)

L4.1
2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. (S.CP.2)

L4.1
3. Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B. (S.CP.3)
L4.1
4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results. (S.CP.4)

L4.1
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer. (S.CP.5)

-Use The Rules Of Probability To Compute Probabilities Of Compound Events In A Uniform Probability Model

L4.1
6. Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A, and interpret the answer in terms of the model. (S.CP.6)

L4.1
7. Apply the Addition Rule, \( P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B) \), and interpret the answer in terms of the model. (S.CP.7)

L4.1
8. (+) Apply the general Multiplication Rule in a uniform probability model, \( P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B) \), and interpret the answer in terms of the model. (S.CP.8)

L4.1
9. (+) Use permutations and combinations to compute probabilities of compound events and solve problems. (S.CP.9)

Using Probability To Make Decisions
-Use Probability To Evaluate Outcomes Of Decisions

L4.1
7. (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game). (S.MD.7)

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Showing Results for:
Course: Principles Of Engineering
Units: 1, 2, 3 & 4
Next Generation Science Standards

Next Generation Science Standards

High School

Engineering Design

L1.1, L3.3
HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. (HS.ETS1.2)

L1.4
HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. (HS.ETS1.1)

L2.4, L3.2, L3.3
HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. (HS.ETS1.3)

Energy

L1.2, L1.4, L3.2, L4.2
HS-PS3-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.* (HS.PS3.3)

Matter and Its Interactions

L2.3
HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. (HS.PS1.3)

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<table>
<thead>
<tr>
<th>Academy</th>
<th>TCTA Course</th>
<th>Traditional Course</th>
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<tbody>
<tr>
<td>Medical Sciences</td>
<td>1. Foundations of Health Science</td>
<td>Human Anatomy and Physiology</td>
</tr>
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<td></td>
<td>2. Therapeutic Services</td>
<td>Forensic Science</td>
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<td></td>
<td>3. Health Science Internship</td>
<td>Life Science Elective</td>
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<tr>
<td>AL State course of Study Objectives for Anatomy and Physiology:</td>
<td>AL State Course of study objectives for Health Science courses – (F)Foundations of HS, (TS)Therapeutic Services and (H) HS Internship.</td>
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<tr>
<td>Use appropriate anatomical terminology. Examples: proximal, superficial, medial, supine, superior, inferior, anterior, posterior</td>
<td>F6 Describe basic structures and functions of the human body systems. - Organization of the human body. TS4.) Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>Identify anatomical body planes, body cavities, and abdominopelvic regions of the human body.</td>
<td>F6 Describe basic structures and functions of the human body systems. TS4.) Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>Classify tissues as connective, muscular, nervous, or epithelial.</td>
<td>F6 Describe basic structures and functions of the human body systems. TS4.) Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>Identify anatomical structures and functions of the integumentary system. • Identifying accessory organs • Recognizing diseases and disorders of the integumentary system Examples: decubitus ulcer, melanoma, psoriasis</td>
<td>F6 Describe basic structures and functions of the human body systems. TS4.) Identify human structures and functions as they relate to therapeutic services. Examples: respiratory system—maintaining an open airway - musculoskeletal system—range-of-motion exercises F12 Describe fundamentals of health promotion and wellness. Examples: disease prevention, exercise, proper diet, avoiding at-risk behaviors H2 Identify basic treatments for selected diseases and disorders.</td>
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<tr>
<td>Identify bones that compose the skeletal system. • Identifying functions of the skeletal system</td>
<td>F6 Describe basic structures and functions of the human body systems.- Skeletal system TS4 Identify human structures and functions as</td>
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<td>Course Crosswalk for Health Science and AI state course of Study for Science</td>
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<tr>
<td>• Identifying subdivisions of the skeleton as axial and appendicular skeletons</td>
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<td>• Classifying types of joints according to their movement</td>
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<td>• Identifying the four bone types</td>
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<td>• Identifying various types of skeletal system disorders</td>
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<td>Examples: fractures, arthritis</td>
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<td>they relate to therapeutic services.</td>
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<td>Examples: respiratory system—maintaining an open airway</td>
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<td>- musculoskeletal system—range-of-motion exercises</td>
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<td>F12 Describe fundamentals of health promotion and wellness.</td>
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<td>Examples: disease prevention, exercise, proper diet, avoiding at-risk behaviors</td>
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<td>TS8 Demonstrate clinical and technical skills necessary in therapeutic services.</td>
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<tr>
<td>Examples: bed making, crutch walking, care for decubitus ulcers/bedsores,</td>
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<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<tr>
<td>TS5 Assess safe practices necessary in therapeutic services.</td>
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<tr>
<td>Examples: crutch walking, canes, walkers, assistive devices.</td>
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</tbody>
</table>

<p>| Identify major muscles, including origins, insertions, and actions.         |
| • Describing common types of body movements, including flexion, extension, abduction, and adduction |
| • Classifying muscles based on functions in the body, including prime movers, antagonists, synergists, and fixators |
| Identifying diseases and disorders of the muscular system                     |
| Examples: muscular dystrophy, multiple sclerosis, strain                     |
| F6 Describe basic structures and functions of the human body systems.         |
| - Muscular                                                                    |
| TS4. Identify human structures and functions as they relate to therapeutic services. |
| Examples: respiratory system—maintaining an open airway                     |
| - musculoskeletal system—range-of-motion exercises                         |
| F12 Describe fundamentals of health promotion and wellness.                  |
| H2 Identify basic treatments for selected diseases and disorders.            |
| TS5 Assess safe practices necessary in therapeutic services.                |
| Examples: evaluating scene, lifting and moving client, using standard precautions |
| TS4 Identify human structures and functions as they relate to therapeutic services. |
| Examples:                                                                    |</p>
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<tr>
<th>Identify structures of the nervous system.</th>
<th>- musculoskeletal system—range-of-motion exercises</th>
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</thead>
</table>
| • Explaining differences in the function of the peripheral nervous system and the central nervous system | F6 Describe basic structures and functions of the human body systems. Nervous system  
TS4 Identify human structures and functions as they relate to therapeutic services. |
| • Recognizing diseases and disorders of the nervous system  
Examples: Parkinson's disease, meningitis | Examples: respiratory system—maintaining an open airway  
- musculoskeletal system—range-of-motion exercises  
F12 Describe fundamentals of health promotion and wellness.  
Examples: disease prevention, exercise, proper diet, avoiding at-risk behaviors  
H2 Identify basic treatments for selected diseases and disorders. |

| Identify structures and functions of the cardiovascular system. | F6 Describe basic structures and functions of the human body systems.  
_Cardiovascular system_  
TS4 Identify human structures and functions as they relate to therapeutic services.  
F13 Demonstrate common technical skills required in the health care industry.  
Examples: assessing vital signs (pulse, respirations and blood pressure) demonstrating cardiopulmonary resuscitation (CPR), administering first aid (for bleeding wounds and shock, cardiac arrest), practicing infection control  
H2 Identify basic treatments for selected diseases and disorders.  
T9 Identify diseases and disorders commonly associated with therapeutic careers.  
Examples: congestive heart failure (CHF), |
|------------------------------------------|--------------------------------------------------|
| • Tracing the flow of blood through the body  
• Identifying components of blood  
• Describing blood cell formation  
• Distinguishing among human blood groups  
• Describing common cardiovascular diseases and disorders  
Examples: myocardial infarction, mitral valve prolapse, varicose veins, arteriosclerosis | |

| Identify structures and functions of the digestive system. | F6 Describe basic structures and functions of the human body systems.  
Digestive System  
TS4 Identify human structures and functions as they relate to therapeutic services.  
H2 Identify basic treatments for selected diseases and disorders.  
T9 Identify diseases and disorders commonly associated with therapeutic careers. |
<table>
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<td>• Tracing the pathway of digestion from the</td>
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<tr>
<td>Identify structures and functions of the respiratory system.</td>
<td>F6 Describe basic structures and functions of the human body systems. Reproductive system</td>
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<tr>
<td>• Tracing the pathway of the oxygen and carbon dioxide exchange</td>
<td>TS4 Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>• Recognizing common disorders of the respiratory system</td>
<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<tr>
<td>Examples: asthma, bronchitis, cystic fibrosis</td>
<td>TS9 Identify diseases and disorders commonly associated with therapeutic careers.</td>
</tr>
<tr>
<td></td>
<td>Examples: chronic obstructive pulmonary disease (COPD), asthma, emphysema, Pneumonia and Bronchitis</td>
</tr>
</tbody>
</table>

| Identify structures and functions of the digestive system    | Examples: respiratory system—maintaining an open airway |
|                                                            | - musculoskeletal system—range-of-motion exercises |
| Examples: ulcers, Crohn's disease, diverticulitis            | T9 Identify diseases and disorders commonly associated with therapeutic careers. |
|                                                            | H2 Identify basic treatments for selected diseases and disorders. |
|                                                            | Examples: Nutrition and feeding for special dietary restrictions, Diarrhea, N&V, Bowel and Bladder Needs, Intake and Output |

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<thead>
<tr>
<th>Identify structures and functions of the reproductive system.</th>
<th>F6 Describe basic structures and functions of the human body systems. Reproductive system</th>
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<tr>
<td>• Differentiating between male and female reproductive systems</td>
<td>TS4 Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>• Recognizing stages of pregnancy and fetal development</td>
<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<tr>
<td>• Identifying disorders of the reproductive system</td>
<td>- Care during pregnancy, delivery and postpartum</td>
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<tr>
<td>Examples: endometriosis, sexually transmitted</td>
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<tr>
<td>diseases, prostate cancer</td>
<td>care</td>
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<tr>
<td>Describe basic structures and functions of the human body systems. –Urinary System</td>
<td>Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>Tracing the filtration of blood from the kidneys to the urethra</td>
<td>Examples: respiratory system—maintaining an open airway</td>
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<tr>
<td>Recognizing diseases and disorders of the urinary system</td>
<td>- musculoskeletal system—range-of-motion exercises</td>
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<tr>
<td>Examples: kidney stones, urinary tract infections</td>
<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<tr>
<td>TS9 Identify diseases and disorders commonly associated with therapeutic careers.</td>
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<tr>
<th>Identify the endocrine glands and their functions.</th>
<th>Describe basic structures and functions of the human body systems. Endocrine system</th>
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<td>Describing effects of hormones produced by the endocrine glands</td>
<td>TS4 Identify human structures and functions as they relate to therapeutic services.</td>
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<td>Identifying common disorders of the endocrine system</td>
<td>Examples: respiratory system—maintaining an open airway</td>
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<td>Examples: diabetes, goiter, hyperthyroidism</td>
<td>- musculoskeletal system—range-of-motion exercises</td>
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<td>Ts9 Identify diseases and disorders commonly associated with therapeutic careers.</td>
<td>Examples: diabetes</td>
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<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<th>Identify physiological effects and components of the immune system.</th>
<th>F6 Describe basic structures and functions of the human body systems.</th>
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<tbody>
<tr>
<td>Contrasting active and passive immunity</td>
<td>TS4 Identify human structures and functions as they relate to therapeutic services.</td>
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<tr>
<td>Evaluating the importance of vaccines</td>
<td>Examples: respiratory system—maintaining an open airway</td>
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<td>Recognizing disorders and diseases of the immune system</td>
<td>- musculoskeletal system—range-of-motion exercises</td>
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<tr>
<td>Examples: acquired immunodeficiency syndrome (AIDS), acute lymphocytic leukemia</td>
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<td>H2 Identify basic treatments for selected diseases and disorders.</td>
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<td>Ts9 Identify diseases and disorders commonly associated with therapeutic careers. Examples: HIV/AIDS, others</td>
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<tr>
<td>F13 Demonstrate common technical skills required in the health care industry. Examples: Personal Protective Equipment and Standard Precautions</td>
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<td><strong>AL State course of study for Forensic science:</strong></td>
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<td>Describe general categories of drugs and poisons and their effects on humans.</td>
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<td>TS 7 Identify common medications used in therapeutic careers. Examples: diuretics, antibiotics, bronchodilators</td>
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<td>H8 Analyze medications and treatments of selected clients using medical references to determine classifications, indications, contraindications, side effects, and dosages.</td>
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<td>Describe presumptive and confirmatory tests. Examples: blood type comparison, DNA testing</td>
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<td>F13 Demonstrate common technical skills required in the health care industry. Examples: blood typing and testing, hemoglobin and hematocrit, glucose testing</td>
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<td>Academy</td>
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<td>Social Studies, Grade 12, Economics, 2010 230051.005</td>
<td>Business, Management, and Administration, Grade 9-12, Business Finance, 2009 450021.001</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.) Explain why productive resources are limited and why individuals, businesses, and governments have to make choices in order to meet needs and wants.</td>
<td>2.) Explain costs of manufacturing related to raw materials, labor, overhead, and operating expenses.</td>
</tr>
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<td>2.) Explain how rational decision making entails comparing additional costs of alternatives to additional benefits.</td>
<td>18.) Interpret statistical data related to finance using bar, line, and circle graphs.</td>
</tr>
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<td>3.) Describe different economic systems used to allocate scarce goods and services.</td>
<td>1.) Utilize research results to analyze current events, laws, and regulations to determine their impact on the global financial market.</td>
</tr>
<tr>
<td>4.) Describe the role of government in a market economy, including promoting and securing competition, protecting private property rights, promoting equity, providing public goods and services, resolving externalities and other market failures, and stabilizing growth in the economy.</td>
<td>1.) Utilize research results to analyze current events, laws, and regulations to determine their impact on the global financial market.</td>
</tr>
<tr>
<td>5.) Explain that a country's standard of living depends upon its ability to produce goods and services.</td>
<td>2.) Explain costs of manufacturing related to raw materials, labor, overhead, and operating expenses.</td>
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<td>6.) Describe how specialization and voluntary exchange between buyers and sellers lead to mutually beneficial outcomes.</td>
<td>4.) Compare currency standards and valuations in a global economy.</td>
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<td>7.) Describe the organization and role of business.</td>
<td>• Analyzing the value of the dollar over time for the factors that affect fluctuation</td>
</tr>
<tr>
<td>8.) Explain the impact of the labor market on the United States' economy.</td>
<td>9.) Determine the effect of the mark-up rate on the price of an item.</td>
</tr>
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<td>9.) Describe methods used to measure overall economic activity, including the Gross Domestic Product (GDP), the Consumer Price Index (CPI), inflation, and unemployment.</td>
<td>20.) Utilize management and financial skills to develop a business plan.</td>
</tr>
<tr>
<td>10.) Explain the structure, role, and functions of the United States Federal Reserve System.</td>
<td>6.) Determine career and entrepreneurial opportunities, responsibilities, and educational and credentialing requirements related to business finance professions.</td>
</tr>
<tr>
<td>11.) Explain how the government uses fiscal policy to promote the economic goals of price stability, full employment, and economic growth.</td>
<td>13.) Determine the impact of revenue and expenses on net income and loss.</td>
</tr>
<tr>
<td>Examples: recruiting, hiring costs, training costs, fringe benefits, etc.</td>
<td>• Analyzing inflation rates to determine how they affect interest rates</td>
</tr>
<tr>
<td>5.) Explain methods used by companies to screen individuals for employment or promotion.</td>
<td>4.) Compare currency standards and valuations in a global economy.</td>
</tr>
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<td>Examples: drug test, credit check, background check, and workplace proficiency.</td>
<td>• Analyzing the value of the dollar over time for the factors that affect fluctuation</td>
</tr>
<tr>
<td>7.) Use cost-efficient technologies to perform job functions in the financial industry.</td>
<td>Examples: financial software, computer numeric keypad,</td>
</tr>
</tbody>
</table>
| 12.) Explain why individuals, businesses, and governments trade goods and services in the global economy. | 1.) Utilize research results to analyze current events, laws, and regulations to determine their impact on the global financial market.  
8.) Compare funding sources for new and expanding businesses.  
Examples: private funding, venture capital, and loans. |
<table>
<thead>
<tr>
<th>ACCOUNTING OBJECTIVES</th>
<th>ALGEBRAIC CONNECTIONS OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>470012</td>
<td>600039</td>
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<td>11. Apply payroll functions to employee and employer records. Examples: calculating gross pay and deductions, journalizing and posting tax and payroll entries</td>
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<td>5. Analyze the accounting equation for the purpose of relating it to the accounting cycle. Examples: journalizing and posting transactions, reporting financial statements, how business activities change the accounting equation, how transaction change owner’s equity in an accounting equation</td>
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<tr>
<td>3. Apply and analyze the steps of the Accounting Cycle: Preparing financial statements (balance sheet, income statement, operating expense statement, cash flow), Preparing a post-closing trial balance, Calculate the depreciation of a fixed asset, Explain accounting functions of fixed assets and depreciation.</td>
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<td>1. Create algebraic models for application-based problems by developing and solving equations and inequalities, including those involving direct, inverse, and joint variation. (Alabama)</td>
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<td>Example: The amount of sales tax on a new car is directly proportional to the purchase price of the car. If the sales tax on a $20,500 car is $1,600, what is the purchase price of a new car that has a sales tax of $3,200? Answer: The purchase price of the new car is $41,000.</td>
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<tr>
<td>2. Solve application-based problems by developing and solving systems of linear equations and inequalities. (Alabama)</td>
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<tr>
<td>3. Use formulas or equations of functions to calculate outcomes of exponential growth or decay. (Alabama)</td>
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<td>Example: Solve problems involving compound interest, bacterial growth, carbon-14 dating, and depreciation.</td>
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<td>4. Determine maximum and minimum values of a function using linear programming procedures. (Alabama)</td>
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<td>Example: Observe the boundaries $x \geq 0, y \geq 0, 2x - 3y + 15 \geq 0$, and $x \leq 9$ to find the maximum and minimum values of $f(x,y) = 3x + 5y$</td>
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<tr>
<td>5. Determine approximate rates of change of nonlinear relationships from graphical and numerical data. (Alabama)</td>
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</tr>
<tr>
<td>a. Create graphical representations from tables, equations, or classroom-</td>
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</tbody>
</table>
**COMPARISON OF ACCOUNTING AND ALGEBRAIC CONNECTIONS OBJECTIVES FOR EMBEDDING MATH CREDIT IN ACCOUNTING**

<table>
<thead>
<tr>
<th>8. Utilize research results to analyze current accounting practices as they relate to service, manufacturing, and merchandising businesses.</th>
<th>generated data to model consumer costs and to predict future outcomes. (Alabama)</th>
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<tr>
<td>6. Interpreted data from a variety of financial statements, including verifying data for business reports and creating charts and graphs for accurate reporting. 8. Utilize research results to analyze current accounting practices as they relate to service, manufacturing, and merchandising businesses.</td>
<td>6. Use the extreme value of a given quadratic function to solve applied problems. (Alabama)</td>
</tr>
<tr>
<td>1. Use technologies needed to perform job functions in the field of accounting. Examples: accounting software, computer numeric keypad, spreadsheets, income tax software. 10. Apply banking and cash control functions to checks, deposits, reconciliation, petty cash, online and electronic banking, and related journal entries. 11. Apply payroll functions to employee and employer records. Examples: calculating gross pay and deductions, journalizing and posting tax and payroll entries. 12. Demonstrate correct procedures for completing federal, state, and local income tax forms.</td>
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<td><strong>CCRS Math - Enrichment</strong> 8. Determine missing information in an application-based situation using properties of right triangles, including trigonometric ratios and the Pythagorean Theorem. Example: Use a construction or landscape problem to apply trigonometric ratios and the Pythagorean Theorem.</td>
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| 6. Interpret data from a variety of financial statements, including verifying data for business reports and creating charts and graphs for accurate reporting. | 10. Critique measurements in terms of precision, accuracy, and approximate error. (Alabama)  
Example: Determine whether one candidate has a significant lead over another candidate when given their current standings in a poll and the margin of error. |
| 8. Utilize research results to analyze current accounting practices as they relate to service, manufacturing, and merchandising businesses. | 11. Use ratios of perimeters, areas, and volumes of similar figures to solve applied problems. (Alabama)  
Example: Use a blueprint or scale drawing of a house to determine the amount of carpet to be purchased. |
| Examples: Use ratios to measure a firm’s bottom line (return on sales), i.e. if a firm’s net profit margin is 6 percent, this means that the company earned $6 for each $100 in sales  
The gross profit margin indicates the profit earned after production costs of the product, but before any fixed and overhead expenses. It is a measure of the manufacturing process productivity.  
Operating profit measures the profits of the firm exclusive of financing costs. This ratio is frequently known as EBITA (profits before interest, taxes and amortization). |   |
|   | 12. Create a model of a set of data by estimating the equation of a curve of best fit from tables of values or scatter plots. (Alabama)  
Examples: Create models of election results as a function of population change, inflation or employment rate as a function of time, cholesterol density as a function of age or weight of a person.  
a. Predict probabilities given a frequency distribution. (Alabama) |
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### COMPARISON OF ACCOUNTING AND ALGEBRAIC CONNECTIONS OBJECTIVES FOR EMBEDDING MATH CREDIT IN ACCOUNTING

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<td>4. Determine maximum and minimum values of a function using linear programming procedures. (Alabama) Example: Observe the boundaries ( x \geq 0, y \geq 0, 2x - 3y + 15 \geq 0, ) and ( x \leq 9 ) to find the maximum and minimum values of ( f(x,y) = 3x + 5y )</td>
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### COMPARISON OF ACCOUNTING AND ALGEBRAIC CONNECTIONS OBJECTIVES FOR EMBEDDING MATH CREDIT IN ACCOUNTING

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<td>Examples: Determine the best choice of certificates of deposit, savings accounts, checking accounts, or loans. Compare the costs of fixed- or variable-rate mortgage loans. Compare costs associated with various credit cards. Determine the best cellular telephone plan for a budget.</td>
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<td>a. Create, manually or with technological tools, graphs and tables related to personal finance and economics. (Alabama)</td>
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<td>Example: Use spreadsheets to create an amortization table for a mortgage loan or a circle graph for a personal budget.</td>
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<td>8. Determine missing information in an application-based situation using properties of right triangles, including trigonometric ratios and the Pythagorean Theorem. (Alabama)</td>
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Examples: Use ratios to measure a firm’s bottom line (return on sales), i.e. if a firm’s net profit margin is 6 percent, this means that the company earned $6 for each $100 in sales.

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Operating profit measures the profits of the firm exclusive of financing costs. This ratio is frequently known as EBITA (profits before interest, taxes and amortization).

Examples: Create models of profit analysis for various business sectors as a function of time and predict market probabilities given a frequency distribution.

Examples: Create models of election results as a function of population change, inflation or employment rate as a function of time, cholesterol density as a function of age or weight of a person.

a. Predict probabilities given a frequency distribution. (Alabama)
### National Standards for Economic Education

The Council for Economic Education has developed curriculum standards for use in economics curricula. The competencies have been integrated into *Business and Personal Finance*.

<table>
<thead>
<tr>
<th>Council for Economic Education (CEE) Standards</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Scarcity</strong></td>
<td>Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.</td>
</tr>
<tr>
<td><strong>Marginal Cost/Benefit</strong></td>
<td>Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are &quot;all or nothing&quot; decisions.</td>
</tr>
<tr>
<td><strong>Allocation of Goods and Services</strong></td>
<td>Different methods can be used to allocate goods and services. People acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.</td>
</tr>
<tr>
<td><strong>Role of Incentives</strong></td>
<td>People respond predictably to positive and negative incentives.</td>
</tr>
<tr>
<td><strong>Gain from Trade</strong></td>
<td>Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.</td>
</tr>
<tr>
<td><strong>Specialization and Trade</strong></td>
<td>When individuals, regions, and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.</td>
</tr>
<tr>
<td><strong>Markets—Price and Quantity Determination</strong></td>
<td>Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.</td>
</tr>
<tr>
<td><strong>Role of Price in Market System</strong></td>
<td>Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.</td>
</tr>
<tr>
<td><strong>Role of Competition</strong></td>
<td>Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.</td>
</tr>
<tr>
<td><strong>Role of Economic Institutions</strong></td>
<td>Institutions evolve in market economies to help individuals and groups accomplish their goals. Banks, labor unions, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.</td>
</tr>
<tr>
<td><strong>Role of Money</strong></td>
<td>Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.</td>
</tr>
<tr>
<td><strong>Role of Interest Rates</strong></td>
<td>Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.</td>
</tr>
<tr>
<td><strong>Role of Resources in Determining Income</strong></td>
<td>Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce and how productive they are.</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>Investment in factories, machinery, new technology, and in the health, education, and training of people can raise future standards of living.</td>
</tr>
<tr>
<td><strong>Using Cost/Benefit Analysis to Evaluate Government Programs</strong></td>
<td>Costs of government policies sometimes exceed benefits. This may occur because of incentives facing voters, government officials, and government employees, because of actions by special interest groups that can impose costs on the general public, or because social goals other than economic efficiency are being pursued.</td>
</tr>
<tr>
<td><strong>Macroeconomy: Income/ Employment, Prices</strong></td>
<td>A nation's overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy.</td>
</tr>
<tr>
<td><strong>Unemployment and Inflation</strong></td>
<td>Unemployment imposes costs on individuals and nations. Unexpected inflation imposes costs on many people and benefits some others because it arbitrarily redistributes purchasing power. Inflation can reduce the rate of growth of national living standards because individuals and organizations use resources to protect themselves against the uncertainty of future prices.</td>
</tr>
<tr>
<td><strong>Monetary and Fiscal Policy</strong></td>
<td>Federal government budgetary policy and the Federal Reserve System's monetary policy influence the overall levels of employment, output, and prices.</td>
</tr>
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<table>
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<th>TCTA Course</th>
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<td>410016</td>
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</table>

1. Compare types of multimedia, including presentation, desktop publishing, Web page design, graphic design, digital photography, and digital video use in creating projects.
2. Utilize a variety of input devices for digitizing multimedia information, including digital camera, video, scanner Internet downloads and graphic software.
3. Use a variety of software and equipment to create, modify, and enhance multimedia projects.
   - Analyze a variety of multimedia software programs to explain their purpose in multimedia production.
   - Describe the stages of the creation of multimedia projects.
   - Utilize various input devices for multimedia project development.
   - Demonstrate appropriate techniques using various software programs and equipment to create, modify, and enhance multimedia projects.
4. Demonstrate appropriate techniques associated with graphic design.
5. Utilize precision tools to manipulate images.
6. Utilize graphic design software to create business and personal publications.
7. Apply integration principles for importing scanned digitized graphics and text, tables, charts, and pictures into a publication.
   - Demonstrate appropriate techniques using various software programs and equipment to create, modify, and enhance a graphic design.
   - Create and edit a graphic using various software.
   - Plan and design a graphic design.
   - Use various input tools to import visuals in a graphic design.
10. Develop interactive Web pages and sites using a variety of component

1.) Create works of art that communicate specific concepts, emotions, and intentions.
   - Selecting appropriate subject matter as a basis for meaningful and expressive compositions
   - Organizing subject matter and formal qualities in a work of art into meaningful and expressive compositions
   - Employing a diverse range of traditional media, digital media, and multimedia; techniques; styles; tools; concepts; and processes in producing meaningful and expressive compositions
   - Producing a thematically related body of work
2.) Employ a diverse range of traditional media, digital media, multimedia, techniques, styles, tools, concepts, and processes in producing meaningful and expressive compositions.
3.) Produce a self-critique of a work in progress.
COMPARISON OF MULTIMEDIA DESIGN AND GRAPHIC ARTS/ART AND DESIGN
FOR EMBEDDING ART CREDIT IN MULTIMEDIA DESIGN

- Plan and design a web page and add multimedia elements and enhancements, i.e. sound and video to a Web page.
- Use input tools to import visuals in a Web page.
- Create and edit Hyperlinks.
- Customize elements and components of a Web page, create a custom theme, create page transitions, add hit counter, and create a search form.
- Practice usability testing for uploading Web pages.
- Publish, manage and evaluate a Web site.

8. Utilize research results to interpret the impact of media and copyright laws on media publications.

4.) Demonstrate independent research related to studio work.

Example: researching masks of various cultures to determine emotional and stylistic characteristics that might influence or inspire the making of a mask

- Maintaining a self-directed sketchbook or journal

1. Compare types of multimedia, including presentation, desktop publishing, Web page design, graphic design, digital photography, and digital video use in creating projects.
2. Utilize graphic design software to create business and personal publications.
3. Apply integration principles for importing scanned digitized graphics

5.) Apply the four-step process of critical analysis to works of art, including describing what is seen, analyzing how each artist arranged the elements of art and principles of design, interpreting expressive intent and purpose, and judging the effectiveness of communication.

- Analyzing selected works of art for visual and functional differences

Example: comparing decorative ceramic vessels and utilitarian pottery
<table>
<thead>
<tr>
<th>and text, tables, charts, and pictures into a publication. 8. Utilize research results to interpret the impact of media and copyright laws on media publications.</th>
<th>describing visual and functional qualities of composition • Describing visual and functional qualities of composition • Describing characteristics of works of art that are common to a cultural group or historical period Examples:   - cultural--use of animals in Eskimo masks, absence of representations of animals or human form in Islamic art;    - historical--inclusion of concepts of war and politics in Francisco de Goya's paintings • Comparing works of art with different styles Examples: Celtic knot designs with rose windows, African masks with Kabuki masks</th>
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<td>1. Compare types of multimedia, including presentation, desktop publishing, Web page design, graphic design, digital photography, and digital video use in creating projects. 6.) Respond orally and in writing to ideas of selected critics, historians, aestheticians, and artists. Example: discussing criteria for valuing works of art from Kenneth Clark's <em>What is a Masterpiece?</em></td>
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<tr>
<td>11. Describe changes in photography over time, including equipment, ideas, issues, and themes. 7.) Explain purpose, function, and meaning of selected works of art from a variety of cultures, times, and places. Examples:   - cultural--use of animals in Eskimo masks, absence of representations of animals or human form in Islamic art;    - historical--inclusion of concepts of war and politics in Francisco de Goya's paintings • Comparing works of art with different styles Examples: Celtic knot designs with rose windows, African masks with Kabuki masks</td>
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<td>14. Compare elements of photography with other creative disciplines. 8.) Compare modes of artistic expression used in art and other academic disciplines. Examples: comparing improvisation in music, visual arts, dance, and theatre; comparing narrative art to literature, a painting of historic events to social sciences, op art to the science of optics, or tessellations to geometric shapes and designs</td>
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<tr>
<td>Common Core Standard for Reading in Technical Subjects: 5. Analyze and evaluate the effectiveness of the structure an author uses in his 9.) Organize research about art, artists, cultures, times, and places into a product or presentation.</td>
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</tbody>
</table>
or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

Examples: producing a digital presentation comparing the use of logos in advertising, writing a research paper comparing art and its social context.

Examples: producing a digital presentation comparing the use of logos and graphics in advertising, write a research paper comparing an ad campaign and its social context.
### COMPARISON OF MULTIMEDIA PUBLICATIONS AND GRAPHIC ARTS/ART AND DESIGN

**FOR EMBEDDING ART CREDIT IN MULTIMEDIA PUBLICATIONS**

<table>
<thead>
<tr>
<th>MULTIMEDIA PUBLICATIONS 410017</th>
<th>Graphic Arts/Art and Design 280090</th>
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</table>
| 1. Identify multimedia components, including presentations, publication layout, graphic design, digital video production, and Web design.  
2. Design enhanced multimedia projects that utilize various computer options.  
3. Create interactive media projects that utilize various technologies.  
   - Apply knowledge and understanding of presentations, publication layout, graphic design, digital video production, and Web design.  
   - Define and use multimedia terminology when identify multimedia concepts.  
   - Identify confidentiality concepts and policies and characteristics of professional conduct.  
   - Identify and analyze multimedia career opportunities.  
   - Demonstrate skills utilizing multimedia software.  
   - Create and edit a multimedia.  
   - Plan and execute multimedia elements and enhancements.  
   - Use input tools to import visuals into a multimedia.  
   - Customize elements and components of a multimedia, create a custom themes, and incorporate current issues in society.  
   - Identify copyright and patent laws pertaining to photography and identify licensing agreements associated with multimedia software.  
   - Determine career and entrepreneurial opportunities, responsibilities, and educational and credentialing requirements related to multimedia.  
   - Analysis current ideas, issues, themes and cultures as related to multimedia. | 1.) Create works of art that communicate specific concepts, emotions, and intentions.  
   - Selecting appropriate subject matter as a basis for meaningful and expressive compositions  
   - Organizing subject matter and formal qualities in a work of art into meaningful and expressive compositions  
   - Employing a diverse range of traditional media, digital media, and multimedia; techniques; styles; tools; concepts; and processes in producing meaningful and expressive compositions  
   - Producing a thematically related body of work  
2.) Employ a diverse range of traditional media, digital media, multimedia, techniques, styles, tools, concepts, and processes in producing meaningful and expressive compositions. |
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<th>Task</th>
<th>Example</th>
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<td>6. Analyze images for visual, spatial, and functional differences.</td>
<td>3.) Produce a self-critique of a work in progress.</td>
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<td>11. Describe changes in photography over time, including equipment,</td>
<td>4.) Demonstrate independent research related to studio work.</td>
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<td>• Producing a reflective narrative that critically analyzes the</td>
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<td>organizational effectiveness and artistic choices of personal and peer</td>
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<td>Physical Science</td>
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<td>Algebraic Connections</td>
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<td><strong>Mathematics Grade 9-12: Algebraic Connections</strong></td>
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<td><strong>Alternative Current and Direct Current</strong></td>
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<td><strong>Accidentally, instead of resistors:</strong></td>
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<td>Also using the power function to show the relationship of current, volts, and periods. Example: Using Pythagorean theorem to solve for VSQ.</td>
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<td>11. Use ratios of perimeters, areas and volumes of similar figures to solve applied problems</td>
<td>AC6. Determine electrical quantities utilizing test equipment, including volts, frequency and period, amperes and power. DC7. Determine electrical quantities of volts, ohms, and amperes utilizing appropriate test equipment. Example: Use a blueprint to determine the amount of wire that need to be run in a house with the determined electrical quantities.</td>
</tr>
<tr>
<td>12. Create a model of a set of data by estimation the equation of a curve of best fit from tables of values or scatter plots.</td>
<td>AC12. Demonstrate troubleshooting techniques for evaluation reactive circuits. DC14. Demonstrate troubleshooting techniques for circuits, including opens, shorts, and grounds. Example: Create a set of possible fixes and costs for an electrical problem based off of data gathered while troubleshooting.</td>
</tr>
<tr>
<td>Science, Grade 9-12, Physical Science</td>
<td>Architecture and Construction (2009), Grades 9-12, Direct Current and Alternating Current</td>
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<tr>
<td>1.) Recognize periodic trends of elements, including the number of valence electrons, atomic size, and reactivity.</td>
<td>DC1.) Identify structure and characteristics of the atom.</td>
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<tr>
<td>2.) Identify solutions in terms of components, solubility, concentration, and conductivity.</td>
<td>DC2.) Explain the relationship of the atom to an electrical charge, including electrostatic field and law of charges.</td>
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<td>3.) Contrast the formation of ionic and covalent bonds based on the transfer or sharing of valence electrons.</td>
<td>DC2.) Explain the relationship of the atom to an electrical charge, including electrostatic field and law of charges.</td>
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<tr>
<td>4.) Use nomenclature and chemical formulas to write balanced chemical equations.</td>
<td>DC3.) Identify sources of electricity, including chemical, mechanical, and solar. Examples: chemical—battery mechanical—generator</td>
</tr>
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<td>5.) Describe physical and chemical changes in terms of endothermic and exothermic processes.</td>
<td>DC3.) Identify sources of electricity, including chemical, mechanical, and solar. Examples: chemical—battery mechanical—generator</td>
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<td>6.) Identify characteristics of gravitational, electromagnetic, and nuclear forces.</td>
<td>DC3.) Identify sources of electricity, including chemical, mechanical, and solar.</td>
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<td>7.) Relate velocity, acceleration, and kinetic energy to mass, distance, force, and time.</td>
<td>AC7.) Solve problems in electrical circuits using Ohm's law, including voltage, current, impedance, and power.</td>
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<td>8.) Relate the law of conservation of energy to transformations of potential energy, kinetic energy, and thermal energy.</td>
<td>AC4.) Explain electrical quantities, including frequency, impedance, power, capacitance, inductance, voltage, current, watts, and periods.</td>
</tr>
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<td>9.) Compare methods of energy transfer by mechanical and electromagnetic waves.</td>
<td>AC4.) Explain electrical quantities, including frequency, impedance, power, capacitance, inductance, voltage, current, watts, and periods.</td>
</tr>
<tr>
<td>10.) Explain the relationship between electricity and magnetism.</td>
<td>AC3.) Explain terms and principles of electromagnetism, including permeability, retentivity, and inductance.</td>
</tr>
<tr>
<td>11.) Describe the nuclear composition of unstable isotopes and the resulting changes to their nuclear composition.</td>
<td>Through my partnership that was previously established, this will be covered by Alabama Power Company. This will be done through guest speakers, field trips, virtual field trips, etc.</td>
</tr>
<tr>
<td>12.) Identify metric units for mass, distance, time, temperature, velocity, acceleration, density, force, energy, and power.</td>
<td>Through my partnership that was previously established, this will be covered by Alabama Power Company. This will be done through guest speakers, field trips, virtual field trips, etc.</td>
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<td>Science, Grade 9-12, Physics, 2005</td>
<td>Manufacturing (2009) Grades 9-12, Introduction to Robotics</td>
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<tr>
<td>1.) Explain linear, uniform circular, and projectile motions using one- and two-dimensional vectors</td>
<td>I.R. 15. Describe types of robot configurations, including revolute, Selective Compliant Assembly Robot Arm (SCARA), Cartesian, cylindrical, spherical, and jointed-arm.</td>
</tr>
<tr>
<td>2.) Define the law of conservation of momentum</td>
<td>I.R. 4. Explain the relationship of the atom to an electrical charge.</td>
</tr>
<tr>
<td>3.) Explain planetary motion and navigation in space in terms of Kepler's and Newton's laws.</td>
<td>I.R. 4. Explain the relationship of the atom to an electrical charge.</td>
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<td>4.) Describe quantitative relationships for velocity, acceleration, force, work, power, potential energy, and kinetic energy.</td>
<td>I.R. 5. Explain electrical terms and units of measures, including direct and alternating current measured in amperes, voltage measured in volts, resistance measured in ohms, power measured in watts, and conductors and insulators.</td>
</tr>
<tr>
<td>5.) Explain the concept of entropy as it relates to heating and cooling, using the laws of thermodynamics.</td>
<td>We will be working collaboratively with the University of Alabama through field trips, guest speakers, etc. to cover this topic with the use of their new multimillion dollar facility and or expertise.</td>
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<td>6.) Describe wave behavior in terms of reflection, refraction, diffraction, constructive and destructive wave interference, and the Doppler effect.</td>
<td>We will be working collaboratively with the University of Alabama through field trips, guest speakers, etc. to cover this topic with the use of their new multimillion dollar facility and or expertise.</td>
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<tr>
<td>7.) Describe properties of reflection, refraction, and diffraction.</td>
<td>We will be working collaboratively with the University of Alabama through field trips, guest speakers, etc. to cover this topic with the use of their new multimillion dollar facility and or expertise.</td>
</tr>
<tr>
<td>8.) Summarize similarities in the calculation of electrical, magnetic, and gravitational forces between objects.</td>
<td>I.R. 5. Explain electrical terms and units of measures, including direct and alternating current measured in amperes, voltage measured in volts, resistance measured in ohms, power measured in watts, and conductors and insulators.</td>
</tr>
<tr>
<td>9.) Describe quantitative relationships among charge, current, electrical potential energy, potential difference, resistance, and electrical power for simple series, parallel, or combination direct current (DC) circuits.</td>
<td>I.R. 5. Explain electrical terms and units of measures, including direct and alternating current measured in amperes, voltage measured in volts, resistance measured in ohms, power measured in watts, and conductors and insulators.</td>
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<td>Academy</td>
<td>TCTA Course</td>
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<td>Public Safety and Law</td>
<td>Emergency Medical Services</td>
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<td>Public Safety and Law</td>
<td>Principles of Public Service Introduction to Fire Science</td>
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<td>Health 9-12-250002</td>
<td>Emergency Medical Services-410024</td>
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<tr>
<td>Analyze technology for its influence on consumer health and health care.</td>
<td>The EMT curriculum doesn’t specifically address technology but the curriculum itself evolves with technology as it relates to documentation and patient care.</td>
</tr>
<tr>
<td>Describe ways to advocate for a healthy environment.</td>
<td>Not specifically addressed but can easily be integrated.</td>
</tr>
<tr>
<td>Describe global environmental issues.</td>
<td>The EMT Basic Curriculum addresses specific environmental issues as it relates to EMS.</td>
</tr>
<tr>
<td>Identify personal, financial, and legal responsibilities of parenthood.</td>
<td>Lesson 4-9 Obstetrics/Gynecology Reviews the anatomical and physiological changes that occur during pregnancy, demonstrate normal and abnormal deliveries, summarize signs and symptoms of common gynecological emergencies, and neonatal resuscitation.</td>
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<tr>
<td>Identify common causes of disability and premature death</td>
<td>Lesson 4-2 Respiratory Emergencies Reviews components of the lesson on respiratory anatomy and physiology. It will also provide instruction on assessment of respiratory difficulty and emergency medical care of respiratory problems, and the administration of prescribed inhalers.</td>
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<tr>
<td>Demonstrate CPR and automated external defibrillator (AED) techniques and other first aid skills</td>
<td>Lesson 4-3 Cardiovascular Emergencies Reviews of the cardiovascular system, an introduction to the signs and symptoms of cardiovascular disease, administration of a patient’s prescribed nitroglycerin, and use of the automated external defibrillator.</td>
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<tr>
<td>Recognize personal responsibility for lifelong health.</td>
<td>Throughout the course</td>
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<tr>
<td>Describe life events that impact mental and emotional health.</td>
<td>Lesson 1-2 Well-Being of the EMT-Basic Covers the emotional aspects of emergency care, stress management, introduction to Critical Incident Stress Debriefing (CISD), scene safety, body substance isolation (BSI), personal protection equipment (PPE), and safety precautions that can be taken prior to performing the role of an EMT-Basic.</td>
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<tr>
<td>Analyze social and cultural messages about food and eating for their influence on nutrition choices.</td>
<td>Although nutrition is not specifically addressed in the curriculum, it is thoroughly discussed in multiple chapters.</td>
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<tr>
<td>Identifying factors that impact nutrition choices, including procurement, cost and food preparation time.</td>
<td>Lesson 4-4 Diabetes/Altered Mental Status Reviews of the signs and symptoms of altered level of consciousness, the emergency medical care of a patient with signs and...</td>
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<td>Describe prevention and management strategies for acute and chronic health conditions.</td>
<td><strong>Lesson 4-4 Diabetes/Altered Mental Status</strong> Reviews of the signs and symptoms of altered level of consciousness, the emergency medical care of a patient with signs and symptoms of altered mental status and a history of diabetes, and the administration of oral glucose. Additional information could be added to satisfy this objective.</td>
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<tr>
<td>Explain prevention methods for communicable diseases and infections.</td>
<td><strong>Lesson 1-2 Well-Being of the EMT-Basic</strong> Covers the emotional aspects of emergency care, stress management, introduction to Critical Incident Stress Debriefing (CISD), scene safety, body substance isolation (BSI), personal protection equipment (PPE), and safety precautions that can be taken prior to performing the role of an EMT-Basic.</td>
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<tr>
<td>Explain the progression of HIV infection to AIDS.</td>
<td><strong>Lesson 1-2 Well-Being of the EMT-Basic</strong> Covers the emotional aspects of emergency care, stress management, introduction to Critical Incident Stress Debriefing (CISD), scene safety, body substance isolation (BSI), personal protection equipment (PPE), and safety precautions that can be taken prior to performing the role of an EMT-Basic.</td>
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<tr>
<td>Interpret federal, state, and local laws as they relate to the purchase, sale, use, and possession of alcohol, tobacco, and drugs.</td>
<td><strong>Lesson 4-6 Poisoning/Overdose</strong> Teaches the student to recognize the signs and symptoms of poisoning and overdose. Information on the administration of activated charcoal is also included in this section. Additional information could be added to satisfy this objective.</td>
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<tr>
<td>Identify effects on health and behavior regarding the use of chemical substances including prescription drugs, over-the-counter drugs, illegal drugs, alcohol and tobacco.</td>
<td><strong>Lesson 4-6 Poisoning/Overdose</strong> Teaches the student to recognize the signs and symptoms of poisoning and overdose. Information on the administration of activated charcoal is also included in this section. Additional information could be added to satisfy this objective.</td>
</tr>
<tr>
<td>Explain physiological effects of chemical substances on health and behavior.</td>
<td><strong>Lesson 4-6 Poisoning/Overdose</strong> Teaches the student to recognize the signs and symptoms of poisoning and overdose. Information on the administration of activated charcoal is also included in this section. Additional information could be added to satisfy this objective.</td>
</tr>
</tbody>
</table>
| Demonstrates complex movement patterns in a variety of activity settings. | This event is designed to simulate the critical task of searching for a fire victim with limited visibility in an unpredictable area. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, agility, balance, anaerobic endurance, and kinesthetic awareness. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: muscles of the chest, shoulder, triceps, quadriceps, abdominals, and lower back.  
EVENT  
During this event, the candidate crawls on hands and knees through a tunnel maze that is approximately 3 feet (91.44 cm) high, 4 feet (121.92 cm) wide and 64 feet (19.51 m) in length with two 90° turns. At a number of locations in the tunnel, the candidate navigates around, over and under obstacles. In addition, at two locations, the candidate crawls through a narrowed space where the dimensions of the tunnel are reduced.  
The movement is monitored/listened to as the candidate advances through the maze. If for any reason, the candidate chooses to end the event, the candidate calls out or raps sharply on the wall or ceiling and the candidate is then assisted out. Upon exit from the maze, the event is concluded. The candidate walks 85 feet (25.91 m) within the established walkway to the next event. |
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<td>Apply movement concepts and fitness principles to a variety of physical activity settings.</td>
<td>This event is designed to simulate the critical task of removing a victim or injured partner from a fire scene. This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, trapezius, deltoids, latissimus dorsi, biceps, and muscles of the forearm and hand (grip).</td>
</tr>
</tbody>
</table>
| Determine characteristics of highly skilled physical performances. | This event is designed to simulate the critical task of breaching and pulling down a ceiling to check for fire extension.  
This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).  
EVENT  
During this event, the candidate removes the pike pole from the bracket, stands within the boundary established by the equipment frame, and places the tip of the pole on the painted area of the hinged door in the ceiling. The candidate fully pushes up the 60-lb hinged door in the ceiling with the pike pole three times. The candidate then |
hooks the pike pole to the 80-lb ceiling device and pulls the pole down five times. Each set consists of three pushes and five pulls. The candidate repeats the set four times. The candidate is permitted to stop and, if needed, adjust the grip. Releasing the grip or slipping from pike pole handle, without the pike pole falling to ground, does not result in a warning or constitute a failure. The candidate may re-establish the grip and resume the event. If the candidate does not successfully complete a repetition (i.e. complete the up and down motion), the proctor calls out “MISS” and the candidate must push or pull the apparatus again to complete the repetition. The event and the total test time ends when the applicant completes the final pull stroke repetition as indicated by the proctor who calls out “TIME”.

### General Safety Tips While Performing Resistance Training

- **Always lift with a partner.**
- **Ask for help from an expert if you don’t know what you are doing.**
- **Progress slowly to avoid injuries.**
- **Never show off by attempting to lift more weight than you normally lift.**
- **Use proper lifting technique when lifting weight plates and dumbbells.**
- **Never drink alcohol or take medications that may cause drowsiness prior to lifting weights.**
- **Do not lift too quickly; always control the weights.**
- **Always use strict form. Proper technique is more important than the amount of weight lifted.**
- **Keep head in a neutral position, looking straight ahead and not upwards or downwards.”**

### Analyze physical activity, sport, and recreations practices for safety, risks, and consequence.

### Use competence, proficiency, and strategy skills to solve problems in a physical education environment.

This event is designed to simulate the critical task of breaching and pulling down a ceiling to check for fire extension. This event challenges the candidate’s aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).

### EVENT

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| Evaluate facilities, and programs within the community that may be utilized for maintaining lifelong fitness. | Cardiopulmonary Endurance Program  
Cardiopulmonary endurance is the ability of the cardiovascular and respiratory systems to deliver oxygen to working muscles. It consists of both aerobic and anaerobic energy systems. |
| Identify characteristics of a responsible leader, including honesty respect for others, and self-control, in a physical education activity. | PRACTICE SESSIONS  
Fire departments utilizing the CPAT shall also ensure that all candidates have full and equal opportunity to perform at least two (2) timed practice runs, using actual CPAT apparatus and completing the entire course. These mandatory practice sessions shall occur within thirty (30) days of the official test date. Again, Certified Peer Fitness Trainers, fitness professionals and/or CPAT-trained fire fighters (proctors) shall help the candidates understand the test elements and how they can improve their performance and conditioning. |
| Interpret research regarding social effects associated with engaging in physical activity with others. | Not addressed within the curriculum but can be added in the same format as local high schools. |
| Demonstrate independence and self-responsibility in student-led physical activities. | PRACTICE SESSIONS  
Fire departments utilizing the CPAT shall also ensure that all candidates have full and equal opportunity to perform at least two (2) timed practice runs, using actual CPAT apparatus and completing the entire course. These mandatory practice sessions shall occur within thirty (30) days of the official test date. Again, Certified Peer Fitness Trainers, fitness professionals and/or CPAT-trained fire fighters (proctors) shall help the candidates understand the test elements and how they can improve their performance and conditioning. |
| Demonstrate the level of fitness required for successful participation in a variety of physical activities. | Interval Training  
Interval training involves a repeated series of exercise activities interspersed with rest or relief periods. This is an excellent tool for improving both aerobic and anaerobic endurance. In this program running intervals are performed on Tuesdays and Thursdays. It is important that interval days have at least one day of slow easy running between them. This provides the recovery necessary to prevent over training. |
| Describe personal goals implemented in an individualized physical fitness performance plan. | PRACTICE SESSIONS  
Fire departments utilizing the CPAT shall also ensure that all candidates have full and equal opportunity to perform at least two (2) timed practice runs, using actual CPAT apparatus and completing the entire course. These mandatory practice sessions shall occur within thirty (30) days of the official test date. Again, Certified Peer Fitness Trainers, fitness professionals and/or CPAT-trained fire fighters (proctors) shall help the candidates understand the test elements and how they can improve their performance and conditioning. |
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PREFACE

HISTORICAL BACKGROUND

When the IAFF/IAFC Joint Labor Management Wellness-Fitness Initiative Task Force (WFI Task Force) first met in December 1996, the WFI Task Force agreed, in part, to address the issue of physical performance in the fire service. The resulting Candidate Physical Ability Test Program (CPAT) was developed to provide fire departments with a tool that would enable them to select inherently physically capable individuals to be trained as fire fighters.

INCUMBENT EVALUATIONS

The mission of the WFI Task Force is to enhance the medical, fitness, and behavioral health; medical and fitness rehabilitation; and wellness-fitness data collection of the fire service. The WFI Task Force has maintained that incumbent performance testing is inappropriate for implementation within WFI Task Force department's and the fire service as a whole. However, before any fire department makes a local decision to implement incumbent testing it must have an adequate support system in place to keep uniformed personnel capable of safely performing fire operation tasks during their entire career. The members of the WFI Task Force have concluded that before an incumbent physical ability test is developed and implemented the fire department must:

- Establish a policy that all incumbent evaluations be non-punitive;
- Fully implement all components of the Wellness-Fitness Initiative (WFI). The full initiative shall be in place for a minimum of 24 months. The requisite components include:
  - Medical fitness,
  - Physical fitness,
  - Rehabilitation,
  - Behavioral health, and
  - Data management.

Fully implement all components of the CPAT program. The requisite components include:

- Minority Recruitment,
- Mentoring,
- Pre-test orientation, training and education,
- Transportability study,
- Administration (proctor training, evaluation and data collection), and
- CPAT test

Furthermore, the WFI Task Force reiterates its position that the failure of an incumbent fire fighter demonstrates the fire department's (including labor, management and the individual) inability to prepare and/or maintain uniformed personnel's training skill and conditioning to perform job-specific functions required for fire department operations.

The WFI Task Force will evaluate pilot projects of incumbent evaluation in fire departments that are members of the Task Force. These fire departments doing this evaluation have met the above conditions and will share their results and data with the WFI Task Force for future considerations.

It is a violation of the CPAT license and the CPAT copyright to use the CPAT test for any incumbent testing.

TECHNICAL COMMITTEE

The WFI Task Force retains a technical committee comprised of the IAFF, the IAFC and subject matter experts from each of the ten jurisdictions. The technical committee members include labor officials, fire fighters, line officers, training officers, physicians, kinesiologists, attorneys, and exercise physiologists. Women and racial minorities were represented among these members. The committee was further advised by expert consultants in the fields of labor and employment law, industrial psychology, and psychometrics. The technical committee was instructed to develop a test that would measure a candidate's physical ability to perform the critical tasks of a fire fighter.
WHAT DOES THE CANDIDATE PHYSICAL ABILITY TESTING PROGRAM INCLUDE?

The WFI Task Force’s goal was to develop a fair evaluation system in the selection of fire fighters to ensure that all fire fighter candidates possess the physical ability to complete critical tasks effectively and safely. WFI’s CPAT project has seven major components.

- Recruiting a Diverse Candidate Pool
- Mentoring and Preparing Physically Qualified Candidates
- Validating CPAT for Your Department
- Orientation & Practice Sessions
- CPAT Description
- Test Administration
- Data Collection

This CPAT was developed to allow a fire department to fairly obtain a diverse pool of candidates who are physically capable of performing the tasks required in recruit school.

This 2nd edition reflects the experiences of U.S. and Canadian fire departments in implementing the comprehensive CPAT program.

In 2006, the following orientation and pre-test procedures were implemented after a conciliation agreement with the US Equal Employment Opportunity Commission (EEOC):

All candidates will attend at least two mandatory orientation sessions commencing within eight weeks before the actual official CPAT test date, during which they will receive "hands on" familiarity with the actual CPAT apparatus. Candidates may voluntarily attend up to one additional orientation session.

Within 30 days prior to the actual CPAT test date, all candidates will perform at least two timed practice runs, using actual CPAT apparatus, and in which the candidate is allowed to take as much time as necessary to complete the entire course.

A candidate may waive all of the fore-mentioned program components and be eligible to participate in a CPAT test. Such a waiver shall only be acceptable if it is in writing, and is made on a wholly knowing and voluntary basis.

During the orientations and practice runs certified Peer Fitness Trainers, fitness professionals and/or CPAT trained fire fighters (proctors) will be present to help all candidates understand the test elements and how they can improve their physical performance and conditioning prior to taking the test.

A complete copy of this conciliation agreement may be found in Appendix E.

Further, the WFI Task Force now requires that all those that are licensed to use the CPAT must fully implement these orientation and pre-test procedures. For those fire departments that are utilizing another Licensee to conduct their CPAT, the fire department, as the employer, must ensure that these changes are incorporated.

Through the CPAT licensing agreement, all licensees have agreed to provide the IAFF with data on candidate CPAT performance. To facilitate the collection of such data, the IAFF has developed and has now provided to each licensee a secure web-based data collection and reporting system for CPAT entitled the CPAT Administrator. As a condition of continued licensure, all licensees shall now use this program and report to the IAFF database on an annual basis. This information will be provided in a redacted format, which will keep the employer identity confidential, to the US EEOC.

It is the hope of the WFI Task Force that this manual clarifies any issues included in the first edition and improves upon this already very successful program.
CHAPTER 1
RECRUITING A DIVERSE CANDIDATE POOL

WHY IS HAVING A DIVERSE FIRE DEPARTMENT IMPORTANT?

In today's society, communities are increasingly diverse and fire fighters are continually challenged to operate in multicultural environments. The fire department should reflect the community it serves. The goal of the CPAT is to test for those who are physically prepared to be trained to perform the job of fire fighter. The CPAT cannot be separated from the department's broader goal of attaining a properly trained and physically capable workforce whose members reflect the diversity of the community. Diversity should never come by lowering validated entry standards. Rather, it should come from actively recruiting qualified men and women candidates from all racial and ethnic backgrounds for careers in the fire service.

The required job skills of the modern fire fighter are complex. In one shift, today's fire fighters may extinguish working fires, mitigate a hazardous materials incident, provide emergency medical care to an adolescent victim, and support the grieving spouse of a dying patient. In addition, fire fighters must interact frequently with community members during routine pre-fire inspections, community events, and school presentations. In order to accomplish these tasks successfully, it is necessary to have a well rounded, competent workforce made up of both genders to include all races and ethnic backgrounds.

In the past, many departments have incorrectly assumed that all types of people would be attracted to the fire service because of the nature of the job and its many benefits. These false assumptions have resulted in a workforce that is less than diverse, and in some cases have led to lawsuits, court orders, and consent decrees. This cycle of judicial order and reactive action takes control of the recruitment and hiring process out of the fire department's hands.

Proactively recruiting protected groups year-round is the best method of attracting qualified and diverse applicants. This approach reflects the fact that many protected groups have not had adequate exposure to the requirements and rewards of the job of a fire fighter. The goal of targeted recruiting is to select and retain the most qualified applicants while obtaining a diverse workforce. Successful recruiting ensures that a fire department will have a large pool of applicants to include a racial and ethnically-mixed group of men and women.

SUGGESTED WAYS TO RECRUIT

There is no one way to target qualified, diverse fire fighter applicants. Fire department officials should remember that successful recruiting is not limited to the period of time before the examination is administered. They must also recognize that fire fighters "self-recruit," by attracting others who are like them in race, ethnicity, or gender. Fire departments should target recruiting towards underrepresented groups reflected within their community. This will help to broaden the applicant pool. Such recruiting encourages those who might not otherwise apply because they were either unaware of the opportunity or not familiar with the outstanding career that fire fighting provides. There are many recruitment strategies that can be used by fire departments to develop and expand their recruitment efforts.

INTERNAL ACTIONS

A productive recruitment drive is just part of what it takes to increase diversity in the fire department. For recruitment to be effective, managers must establish a positive climate within the department before encouraging members of a diverse community to become fire fighters. Fire departments must also begin to recognize, and take advantage of, the recruitment impact of most of their public activities. Expanding the concept of recruitment will make the recruitment drive itself more successful and will increase the likelihood that minorities who are recruited will actually become fire fighters.

The skills and dedication of the people working in the recruitment unit, the creativity that goes into designing the program and the verbal, logistical and financial backing given to the effort by top management, all play important parts in the success of your department's recruitment effort. All of this effort and investment must be supported. If other aspects of the department give out a conflicting message, or if the department is unprepared for a workforce that includes minorities, much of the recruitment effort will have been wasted.

Assess the department climate with respect to change in the workforce. Review department policies and facilities, and make changes where appropriate. Are the policies suitable for all? If a problem does occur, do employees know how to use the system to correct it, and do they trust the system to be fair, speedy and confidential? Are fire stations suitable for the workforce that includes all individuals who will be assigned there? Are training instructors chosen for their competence and knowledgeable about alternative techniques for physical tasks, and generally pos-
itive about training? Provide meaningful diversity training for all levels of the department, beginning with its top management. Provide training for all department members in communications skills and conflict resolution. These seemingly irrelevant skills contribute significantly to workforce harmony. Therefore it is strongly recommended that organizations implement programs such as mentoring and peer mediation.

COMMUNITY OUTREACH

Any event where members of the community assemble is an opportunity for the fire department to recruit new applicants and to inform the public about its commitment to hiring a qualified workforce that reflects the diversity of the community. Events may include state fairs, county fairs, health fairs, races and other athletic events, churches, community colleges, barber shops, beauty salons, local social events and fund drives. In addition, an ongoing awareness program of public speaking, educational, and other opportunities to include women and minority fire fighters in community outreach will reinforce recruitment efforts made prior to the examination.

In many communities, the firehouse remains an icon of the neighborhood. Parents bring their children to the firehouse to meet the men and women who protect them, and groups, such as the scouts and school children, come to learn about the job. An open house not only provides a unique opportunity for the fire department to showcase its diversity, but also serves as an opportunity to recruit members from the community it serves and whose population the fire department seeks to reflect.

COMMUNITY ORGANIZATIONS AND PARTNERSHIPS

Individuals involved in the recruitment program may come from various areas. This may include fire fighters, non-suppression personnel and support staff from other fire departments or governmental agencies. One may consider community volunteers with human resource abilities or qualified uniformed personnel if your department has few or no members that represent a diverse community.

Minority and women's organizations as well as organizations successful in their recruitment efforts are valuable sources of ideas and resources for recruiting, and can be used throughout the year to spread the word about the fire department's search for a qualified, diverse applicant pool. These groups may also be willing to assist with applicant training. Fire departments should identify helpful organizations, make contact with key individuals within these groups, and establish an ongoing dialogue about ways to diversify the fire department. These groups should be given pre-examination recruitment materials and asked to provide specific assistance and resources for pre-examination recruitment. Some of the following groups may be helpful.

Local ethnic, minority, and women's advocacy and employment groups

Local or regional offices of national organizations such as the National Association for the Advancement of Colored People (NAACP), the Urban League, National Organization of Women (NOW), and Wider Opportunities for Women (WOW)

Whatever the size of a department, utilization of all resources will maximize recruiting efforts. A recruitment program is very similar to a public education program. Modeling recruitment efforts after a public education curriculum may prove valuable. These types of efforts target audiences and present messages in a way the audience will understand and respond. Similar to the public information officer, the recruiter should possess skills that can be useful in designing and distributing press releases and obtaining media coverage for recruitment events.

The use of community volunteers to distribute literature and network with various community groups provides another means mechanism of recruitment. This fosters relationships within the community and may help to carry the message of recruitment. As an example, small departments with limited budgets may also be able to find people who will donate their professional skills to design brochures, print flyers or make public service announcements. Local businesses may donate all or part of the cost for printing literature and posters for a recruitment drive. Local educational facilities may allow students to work on the development, the production or the editing of a project for school credit. Cable television companies may provide video equipment, editing facilities and a wide viewing audience. Fitness centers and gyms may be willing to offer discount memberships to fire fighter applicants preparing for the recruitment process.

THE INTERNET

The Internet is a valuable resource for learning about local organizations committed to improving job opportunities for females and minorities. Fire department officials may also wish to work with minority and women's groups within the department to help with recruitment efforts. A fire department's web site can provide information about the requirements to become an entry-level fire fighter and the department's commitment to a diverse workforce.
MEDIA

The media can also provide a significant ongoing opportunity through which the fire department can educate the public regarding the rewards and requirements of being a firefighter and the fire department's commitment to diversity. Fire departments should make use of radio and television, as well as newspapers and magazines with significant female or minority audiences. Fire departments can:

- Issue press releases announcing upcoming examinations, as well as the promotion of women and minorities within the department.
- Seek press coverage of fire fighters and recruits, including feature stories on females and minorities who are progressing through the academy and who are serving as fire fighters.
- Develop advertisements that feature women and minorities performing the duties of fire fighters.
- Make use of free public service announcements, cable access programs and other low or no cost opportunities to promote diversity.

BROCHURES AND PUBLIC ANNOUNCEMENTS

Fire departments should ensure that posters, brochures, and other recruitment information illustrating the diversity of the fire department are visible and available to female and minorities. Fire departments should consider distribution of recruitment materials to:

- Minority neighborhoods, churches and other community gathering places.
- Gyms and health clubs with predominantly minority or female memberships.
- Social service organizations.
- Businesses frequented by minorities and females.
- Women's athletic clubs, teams and events.
- Military personnel — active or recently discharged.

COLLEGES AND HIGH SCHOOLS

Fire departments should develop and maintain contacts with middle schools, counselors and high school and college career placement officers in their community, advising their commitment to a fire department that reflects the community. Some colleges offer classes toward a degree in fire science; others may be willing to assist with pre-examination training. College athletic departments (including state, private and community colleges, universities, and junior colleges) have consistently provided many physically capable minority applicants. These applicants are often self-motivated, physically fit, and open to physical challenges.

Many colleges and high schools have career days where students can learn about future employment opportunities. These forums provide the fire department with a great opportunity to introduce the fire service as a career, especially for women and minorities who might not have considered fire fighting as a job possibility available to them.

APPLICATION AVAILABILITY

Fire departments should ensure that applications for entry-level firefighter positions are available in a number of locations throughout the area served by the fire department, particularly in areas with a high minority population and businesses and organizations frequented by minorities and females.

SUMMARY

It is the position of the IAFF/IAFC Joint Labor Management Wellness-Fitness Initiative Task Force that fire departments should increase the diversity of their workforce by actively recruiting candidates from throughout their communities rather than lowering candidate physical ability standards. As described in this chapter, fire departments can pursue many avenues to raise awareness of the job opportunities within the fire service before testing is administered.

CHAPTER 2
MENTORING AND PREPARING PHYSICALLY QUALIFIED CANDIDATES

A mentor is a positive role model with whom applicants can identify. Mentors demonstrate that men and women from any race, religion or ethnic group can perform the job of a fire fighter. A mentor can introduce the fire service as a noble profession and display the pride that being a fire fighter bestows.

Mentors can be utilized in many aspects of recruiting, including participating in recruiting sessions at colleges, high schools, community events, and open houses. In addition, mentors have been used by participating departments in the following ways:

- Support of cadet or explorer programs where future applicants (15 to 21 years old) participate in fire department activities to learn about the job
- Participation in bringing one's child to work events
- Teaching fire fighter fitness and conditioning courses at community colleges
- Sponsoring and supporting athletic events for fire fighters at public venues

MENTOR

A mentor is defined as a trusted counselor or teacher, especially in the occupational setting. The goal of a mentor is not merely to get a candidate to pass the CPAT, but to prepare the candidate to be a successful member of the fire and rescue team.

It is also beneficial to maintain a diverse group of mentors. Candidates need to identify with a mentor to achieve maximal success in the program. Having a diverse group increases the chances of achieving that goal.

PHYSICAL TRAINING

The physical training component of a CPAT mentoring program is a key piece of the overall mentoring program. A fire department's CPAT license mandates that eligible candidates have a minimum of eight weeks to familiarize themselves with the CPAT events and physically prepare for the test. The CPAT presents a multitude of physical demands and it is up to the mentor to adequately prepare candidates for all of these demands. A highly successful mentoring program will include elements of strength training, cardiovascular training, CPAT event-specificity training and flexibility training. It is also important to remember that candidates will enter the mentoring program at varying physical levels. Therefore, training programs must adapt to the baseline ability level of each individual.

STRENGTH / CORE TRAINING

Strength training can encompass various types of resistance training — dumbbells, resistance machines, resistance bands, body weight training, etc. No matter which type of training is used the program should also include core training. Maximizing the strength of the core will significantly increase the force production capability and the neuromuscular efficiency of the extremities, thus improving overall strength.

It is important to note the principle of specificity of training. The more alike the training regimen is to the task being tested, the better the overlap to that task. Therefore it is important to have training on the actual CPAT tasks including running the course in its entirety.

CARDIOVASCULAR TRAINING

All aspects of the CPAT challenge a candidate's cardiovascular abilities. A mentoring program would be incomplete without some type of cardiovascular training. Initially basic, timed cardiovascular activities are sufficient to build a cardiovascular base. To improve aerobic ability it is important to progress to higher intensity activities. An example would be interval training which requires the candidate to train for a short period at near maximal aerobic capacity followed by a period of sub-maximal activity.

FLEXIBILITY / RANGE OF MOTION

Initially, mentoring sessions should BEGIN with slow, dynamic stretching to warm up muscles and prepare connective tissues for activity. The sessions should END with static stretches to elongate contracted muscle fibers.

TOTAL INTEGRATION

The physical component of a CPAT mentoring program is the most visible sign to the fire service candidate, however, it is equally important to impart the values that make the fire service great. Mental strength and confidence imparted upon a candidate from a mentor can give the candidate the internal drive necessary to help him or her begin a successful career in the fire service.

ADMINISTRATION

The depth of a fire department's commitment to successful CPAT mentoring is reflected in the amount of time and resources allotted to their mentoring program. These efforts can come from within the department or if internal resources are not available outside sources can be used. The minimum requirements for a CPAT mentoring program are to make Peer Fitness trainers or active fire fighters available to candidates at their two orientation sessions and allow for two trial runs at the CPAT prior to the official test date. However, many departments have shown the efficacy of more in-depth mentoring programs that include the opportunity to meet with a peer fitness trainer up to four times per week for a period of up to 16 weeks.
CHAPTER 3
CPAT TRANSPORTABILITY AND LICENSING

In order for your department to utilize the CPAT you must comply with the Uniform Guidelines on Employee Selection Procedures (1978). When the IAFF, IAFC and the ten departments and their local union affiliates of the Joint Labor Management Wellness-Fitness Task Force decided to embark on the development of a physical ability test for fire service candidates, we were required to comply with these guidelines. Any fire department utilizing CPAT must validate that the CPAT is a suitable test for your jurisdiction.

The specific section in the Code of Federal Regulations (CFR) that applies to validating a test for one organization that was developed by another organization is found in 29 CFR 1607.7. This section of the Guidelines requires these organizations to provide evidence in three specific areas.

First, an employer must provide evidence that the selection procedure is valid.

Second, an employer must provide evidence of job similarity with the job on which the validity study was performed.

Third, an employer must provide evidence of test fairness. It is for this reason that departments are required to submit their CPAT results to the national database at the IAFF using the CPAT Administrator, the required CPAT data collection software.

TRANSPORTABILITY STUDY
Transportability studies are a routine part of the selection criteria adoption process. Most tests are developed with the assistance of a limited number of participants and then applied to additional participants after the initial development phase has been completed. In general, the goal of the transportability study is to demonstrate that the major work behaviors required of the participants in the initial test development are sufficiently similar to the major work behaviors required by other users of the selection criteria.

The steps to conduct an effective transportability study include:

- Selection of a transportability study leader
- Analysis of essential job duties required by the department
- Completion and analysis of the physicality and criticality surveys found in Appendix C
- Completion and analysis of the equipment survey found in Appendix C
- From this analysis, creation of a written job description
- Apply for licensure from the IAFF

Listed below are descriptions of each of these steps.

SELECTION OF A TRANSPORTABILITY STUDY LEADER

One person from within your department should be responsible for coordinating the implementation of the CPAT for your fire department. The individual designated as the leader of the transportability study should be someone who is familiar with CPAT protocols and has good administrative and communication skills.

The leader of the transportability study is responsible for ensuring all parts of the transportability study remain in their possession and the transportability study is administered exactly as the instructions are written. Securing the data is essential to ensuring the study is valid and accurately reflects the opinions and practices of the department’s personnel.

JOB ANALYSIS

Performing the job analysis is the basis for the transportability study. In order to accurately perform the job analysis you will have to perform several steps including, determining the number of required survey participants, selecting survey participants, determining where and how you will administer the surveys, administering the surveys, and having the data evaluated by a testing professional from either within your department or an outside consultant.

DETERMINING THE NUMBER OF SURVEY PARTICIPANTS

Surveying an adequate number of fire fighters in your department is critical to the validity of the results. Similarly, adequately representing the diversity of your department is essential for acquiring a representative sample. The following procedure must be followed to assure a diverse group of individuals have completed the survey.

The number of personnel required to complete the survey is dependent on your department’s size. The results are strengthened if more personnel complete the survey. Larger fire departments will be able to survey a percentage of their personnel while smaller fire departments may be required to survey all their personnel. The quantity of surveys completed ensures the results adequately represent the opinions of fire department personnel regarding the criticality and physicality of the survey’s 31 fire fighting tasks.
SELECTION OF SURVEY PARTICIPANTS

Members of your department who complete the criticality and physicality ratings of the 31 fire fighting tasks should be selected using a stratified sampling. The selection of these survey participants must follow these steps:

- Individuals selected to complete the survey must represent personnel from all areas within your department's operational rank structure. Probationary fire fighters and fire fighters serving in administrative positions should not complete the survey due to their lack of experience or current exposure to fire fighting tasks.

- Personnel randomly selected to complete the survey must represent a diverse group of department members. Survey participants must include personnel from different ranks, ages, gender, and ethnic/minority groups. The survey participants ultimately selected must include a representative sampling from each of these groups although it is acceptable to have more participants from the lower ranks. Failure to include a diverse department sample may jeopardize the validity of the survey results. A testing professional should be contacted if you experience difficulty regarding your ability to achieve the diversified sample.

DISTRIBUTION OF SURVEYS

The transportability study leader is responsible for administering the criticality and physicality surveys to department personnel. To alleviate having to read the instructions multiple times, large groups should be assembled if possible. Similarly, to assure consistency in the administration of these surveys the same person must administer all surveys.

The method used to distribute the surveys to selected personnel will vary from department to department. If your fire department is large and well diversified, the surveys can be distributed as part of a group training exercise. The surveys can be administered during different exercises until representative sampling is achieved. If your department is small to mid-size, and not well diversified, you can administer the surveys to an entire station or shift that has the required representative sampling. Your department's Personnel Section or Human Resources Department should be able to assist you with identifying the work locations of underrepresented members.

ADMINISTRATION OF SURVEYS

Once a group of survey participants have been assembled, the transportability study leader must distribute the job task surveys and #2 pencils with instructions to all participants not to proceed until all instructions have been read and understood. The transportability study leader reads the following instructions after all survey participants have received a job task survey and a #2 pencil:

Please open your booklets to page one and follow along as I read the instructions. The instructions must be followed exactly. Please do not proceed to the survey until I have read the instructions.

The CPAT is a comprehensive evaluation system that evaluates whether fire fighter candidates possess the minimal physical ability to commence training as an entry-level fire fighter.

Your fire department, as the employer, has elected to validate the test for use by your department. The validation effort will require you to participate in a survey regarding fire fighter job requirements. We need you to identify, based on your experience, the critical and physical tasks that all fire fighters must perform.

Your responses to the questionnaire and participation will be completely confidential. You are not required to state your name or provide any identifiers. You have been randomly selected and will remain anonymous. Your completed questionnaire will be collected and analyzed to determine if the CPAT is suitable for use by your department.

Initially, the technical committee, made up of members from the original ten participating departments, reviewed job descriptions and job analyses from each of the ten fire departments. From these job descriptions the committee derived a list of 31 physical tasks are critical to the job of fire fighting.

Please rate each task on two scales based on your experience as a fire fighter. First assess the critical nature of the task during a fire emergency. Second, assess the physical effort required to successfully perform each task. Use the following scale:

Criticality
1 = Not Performed
2 = Least Critical (failure to perform results in no negative consequences.)
3 = Important (beneficial for the successful performance of the job.)
4 = Critical (essential for the successful performance of the job.)
5 = Extremely Critical (failure to perform results in extreme negative consequences.)
Physicality
1 = No physical effort required
2 = Minimal physical effort required
3 = Moderate physical effort required
4 = Excessive physical effort required
5 = Maximal physical effort required

As you rate each task for criticality and physicality be sure not to include the rating variable of frequency. Evaluating the frequency of these job functions, or how often these tasks are performed, was determined by the technical committee to be unnecessary. Due to the emergency nature of a fire fighter’s job, a critical task is essential regardless of how frequently it may be performed. For example: Very few fighter pilots ever have the experience of ejecting from the seat of a fighter jet. However this is commonly rated as a critical task for a fighter pilot regardless of how frequent the task is performed.

Are there any questions?

Be sure all incorrect responses are erased and all selections are clearly marked.

After you have completed the survey please close the booklet and hand in your survey. Thank you for taking the time to participate in the CPAT implementation effort. Please begin the survey.

EQUIPMENT SURVEY INSTRUCTIONS

OVERVIEW
During the CPAT development process the technical committee developed an equipment survey to identify the type, size and weight of tools, equipment, and personal protective clothing used by each fire department. Additionally, local demographic information was requested on building construction and codes as well as the average weights of fire fighters and patients admitted to local hospitals and emergency departments.

From the Equipment Survey data, the technical committee developed the standard weights and types of tools and equipment, established the distances used in the course layout, and determined the lengths used in prop and test equipment design.

PERFORMING THE EQUIPMENT SURVEY
The accuracy of your responses to the survey is critical. Inaccurate information can jeopardize your department’s ability to utilize the CPAT program. Please follow these steps to insure accurate information:

- Locate the equipment listed on the survey.
- Measure and weigh each piece of equipment using accurate scales (lbs.) and measurement instruments (feet/inches) as identified in the survey. Weights and lengths of equipment taken from specification sheets and or catalogs are also acceptable.
- Insert weights and measures in the appropriate blanks on the survey.
- Fill in the required information on the person who compiled the measurements.
- Compare your survey results with the results of from the 10 task force departments.

EVALUATION OF JOB ANALYSIS AND EQUIPMENT SURVEY
The job analysis survey data must be analyzed to determine if your fire department is similar to the original 10 fire departments. Comparisons should be made using the original 10 fire department’s job analysis found within Appendix E. Furthermore, you must be able to demonstrate that your department personnel rate each of the eight CPAT-related tasks similarly as the original 10 fire departments.

The equipment survey data for your fire department must also be compared to the original 10 fire departments. This data must demonstrate that your fire department uses similar equipment as did the original 10 fire departments, and more importantly what each of the eight CPAT events requires.

It is important the data is properly analyzed. A testing expert should perform the final data analysis and report to ensure the data comparisons are within the limits to allow your fire department to use the CPAT.

LICENSURE
To ensure that the CPAT is being used properly and used only as intended employers responsible for hiring fire fighter candidates must apply for CPAT licensure. This procedure was instituted by the Task Force to protect the integrity of the CPAT Program and the interests of the members of the IAFF and the IAFC by ensuring that the program is implemented properly and as intended.

Under the current policy, authorization to use the CPAT will only be granted to fire departments and other entities
that will be fully administering the CPAT Program. Limiting the granting of licenses to only those entities that actually administer the program have enabled us to better ensure that the CPAT is only being administered in strict compliance with the licensing agreement.

Third party testing organizations (including but not limited to state/provincial fire academies, colleges/universities, or for profit and not for profit testing agencies) that only administer the physical testing portion of the CPAT may apply for a Limited License. Such Limited Licenses allow such third party testing organizations to use the CPAT for purposes of testing the physical capability of firefighter candidates. However, this license is granted only upon the express conditions that the licensee may only administer the CPAT for a fire department that already possesses a complete and valid license from the IAFF. These Limited License organizations then operate under the license of the jurisdiction that is responsible for administering the overall CPAT Program.

In addition, a fire department that uses another fire department’s resources and facilities to test candidates must apply for a license of their own. The licensing policy ensures that the CPAT Program used by the licensee fully covers every aspect of the CPAT, including recruiting and mentoring programs, orientations, and pre-test, so as to provide recruits with fitness guidance to help prepare them for the CPAT and setting up and administering the test.

If you are contemplating use of the CPAT, you need to complete and forward an application found at www.iaff.org/safe/cpaticense. As soon as an acceptable application for a CPAT license is completed and received by the IAFF, setting forth the terms and conditions that you will be required to follow in your utilization of the CPAT, a license will be forwarded to you. Any use of the CPAT without a license or any misuse of the CPAT program is a violation of the IAFF copyright on this program.
CHAPTER 4
PREPARATION, ORIENTATION & PRACTICE SESSIONS

The CPAT is a widely used, comprehensive physical ability test designed specifically for the fire service. Use of the CPAT now requires specific requirements for candidate preparation, orientation and practice sessions. Pursuant to the conciliation agreement with the EEOC, the CPAT program must provide all candidates an opportunity to attend at least two CPAT orientations. Additionally, all candidates must receive “hands-on” familiarity with the test apparatus and receive guidance on specific conditioning regimens and techniques to help them prepare for the test. Each candidate shall also be provided an opportunity to perform practice runs of the CPAT.

PREPARATION

The employer must provide all candidates with pretest materials to ensure that all candidates have an equal opportunity to compete for the job of fire fighter. Such a preparation guide provides all candidates, regardless of their background or experience in exercise principals and techniques, the same opportunity to succeed. Similarly, this helps the department avoid failing candidates who are physically capable but unprepared for testing.

The preparation guide must include information on:

- The physical demands of the Candidate Physical Ability Test (CPAT)
- The necessity of proper hydration
- Basic training principles
- Warm up techniques
- Flexibility techniques
- Muscular strength/endurance techniques
- Cardiovascular endurance techniques
- Training techniques for those without a gym or specialized equipment

A sample CPAT Preparation Guide is included in Appendix B.

It is mandatory that all candidates receive a preparation guide at least eight weeks prior to their CPAT date. The guide can be distributed at the time of application or at the orientation prior to the CPAT. In addition, departments may distribute the preparation guide during recruitment activities and such materials should be a part of all mentoring activities.

ORIENTATION

As initially designed and developed, the CPAT provided for voluntary orientation sessions intended to familiarize candidates with the test apparatus and requirements. However, increased orientation and practice opportunities significantly improve the ability of all candidates to complete the CPAT within the “cut off” time of 10 minutes and 20 seconds. Therefore, it is now mandatory that all candidates must be given the opportunity to attend at least two (2) orientation sessions, with the first session taking place at least eight (8) weeks prior to the actual test date.

During the sessions, candidates will receive “hands on” familiarity with the actual CPAT apparatus. Also during the orientation sessions, Certified Peer Fitness Trainers, fitness professionals, and/or CPAT-trained fire fighters (proctors) shall familiarize all candidates with each task and apparatus, and shall advise all candidates concerning specific conditioning regimens and techniques to help them prepare for the CPAT. The comprehensive procedures for conducting CPAT orientation sessions are found in Appendix B.

PRACTICE SESSIONS

Fire departments utilizing the CPAT shall also ensure that all candidates have full and equal opportunity to perform at least two (2) timed practice runs, using actual CPAT apparatus and completing the entire course. These mandatory practice sessions shall occur within thirty (30) days of the official test date. Again, Certified Peer Fitness Trainers, fitness professionals and/or CPAT-trained fire fighters (proctors) shall help the candidates understand the test elements and how they can improve their performance and conditioning.

In order to reduce the burden on a department’s resources, it is permissible for a candidate to pass the CPAT during either of the practice sessions, provided that the department has fully staffed and administered the test as they would on the official test day. However, a candidate who passes the CPAT during a practice session shall not be ranked ordered ahead of any candidate who requires both practice sessions and the official test to pass the CPAT.
WAIVER

Although the two-phased orientation and practice program set forth above must be treated by the fire department as a mandatory condition for candidates taking the CPAT test, it is recognized that fire departments are likely to have candidates in their candidate pool who believe that they are capable of passing the CPAT without attending the orientation and practice program. It is also recognized that resources devoted to the orientation and practice program are best spent on those candidates who will truly benefit from this assistance. It is therefore permissible for fire departments to excuse candidates from this requirement upon receipt of a written and signed waiver from the candidate acknowledging that this orientation and practice program was made available to all candidates on an equal basis and that the candidate voluntarily and knowingly waives the opportunity to participate in the orientation and practice program.

It is required that all those that are licensed to use the CPAT must fully implement these orientation and pre-test procedures. The US Equal Employment Opportunity Commission (EEOC) has also agreed to not bring a lawsuit through April 2011, based upon any claim that the CPAT has an adverse impact for female candidates, against any fire department that utilizes CPAT in conformity with those conditions in their pre-test programs. For those fire departments that are utilizing another Licensee to conduct their CPAT, such fire department, as the employer, must ensure that these changes are incorporated. The EEOC Conciliation Agreement setting forth the foregoing is found in Appendix F. ■
CHAPTER 5
CPAT EVENTS

PRE-TEST PROCEDURES

The CPAT consists of eight separate events. This test is a sequence of events that requires the candidate to progress along a predetermined path from event to event in a continuous manner. This is a pass/fail test based on a maximum total time of 10 minutes and 20 seconds.

In these events, the candidate wears a 50-pound (22.68-kg) vest to simulate the weight of self-contained breathing apparatus (SCBA) and fire fighter protective clothing. An additional 25 pounds (11.34 kg), using two 12.5-pound (5.67-kg) weights that simulate a high-rise pack (hose bundle), is added for the stair climb event.

Throughout all events, the candidate must wear long pants, a hard hat with chin strap, work gloves and footwear with no open heel or toe. Watches and loose or restrictive jewelry are not permitted.

All props were designed to obtain the necessary information regarding the candidate's physical ability. The tools and equipment were chosen to provide the highest level of consistency, safety and validity in measuring the candidate's physical abilities. Schematic drawings and specifications for each prop and specific product information and product numbers are provided in Appendix C. Modification of props or substitution of tools/equipment may alter the content of the test and therefore are not permitted. The entire test is designed to be portable and allow for either indoor or outdoor setup. The floor of the venue must be consistent for all events and for all candidates.

The events are placed in a sequence that best simulates their use in a fire scene while allowing an 85-foot (25.91-m) walk between events. To ensure the highest level of safety and to prevent candidate from exhaustion, no running is allowed between events. This walk allows the candidate approximately 20 seconds to recover and regroup before each event. If the candidate runs between events they receive one warning. A second infraction constitutes a failure, the test time is concluded and the candidate fails the test.

To ensure scoring accuracy by eliminating timer failure, two stopwatches are used to time the CPAT. One stopwatch is designated as the official test time stopwatch, the second is the backup stopwatch. If mechanical failure occurs on the official stopwatch, the time on the backup stopwatch is used. The stopwatches are set to the pass/fail time and count down from 10 minutes and 20 seconds. If time elapses prior to the completion of the test, the test is concluded and the candidate fails the test.

TEST PROCEDURES

The CPAT includes eight sequential events as follows:

- Stair Climb
- Hose Drag
- Equipment Carry
- Ladder Raise and Extension
- Forcible Entry
- Search
- Rescue
- Ceiling Breach and Pull

EVENT 1 STAIR CLIMB

EQUIPMENT

StairMaster StepMill — NOTE: Position the unit with one side up against a wall and the specified elevated platform on the side opposite the wall. The handrail on the side opposite the wall is to be removed. The handrail on the wall side is left in place for the candidate to grasp while mounting and dismounting the StepMill. Additional steps are to be placed at the base of the StepMill to reduce the height needed to mount the StepMill.

PURPOSE OF EVALUATION

This event is designed to simulate the critical tasks of climbing stairs in full protective clothing while carrying a high-rise pack (hose bundle) and climbing stairs in full protective clothing carrying fire fighter equipment. This event challenges the candidate's aerobic capacity, lower body muscular endurance and ability to balance. This event affects the aerobic energy system as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, and lower back stabilizers.

EVENT

During this event, the candidate is required to wear two 12.5-pound (5.67-kg) weights on the shoulders to simulate the weight of a high-rise pack (hose bundle). Prior to the initiation of the timed CPAT, the candidate has a 20-second warm-up on the StepMill at a set stepping rate of 50 steps per minute [Level 3]. During this warm-up period, the candidate is permitted to dismount, grasp the rail or hold the wall to establish balance and cadence. If the candidate falls or steps off the StepMill during the 20-second warm-up period, the candidate is required to remount the StepMill and restart the entire 20-second warm-up period. The candidate is allowed to restart the warm-up period twice. There is no break in time between the warm-up period and the actual timing of the test. The timing of the test begins at the end of this warm-up period when the proctor calls out “START.” For the test, the candidate is re-
quired to walk on the StepMill at a set stepping rate of 60 steps per minute [Level 4] for 3 minutes. This concludes the event. The two 12.5-pound (5.67-kg) weights are removed from the candidate's shoulders. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:
- The candidate is allowed to briefly touch the handrails or wall for balance
- The candidate is given up to two warnings for grabbing the handrails or bearing their body weight on the handrails/wall
- The candidate is allowed to restart the warm-up period twice

The following practices constitute a failure:
- The candidate falls or voluntarily dismounts the Step Mill three times during the warm up.
- The candidate falls or voluntarily dismounts the Step Mill after the start of the test.
- The candidate commits a third infraction for grasping the handrails or bearing weight on the handrails/wall after the start on the test.

Reasons for failure
- Falling demonstrates poor balance or muscular endurance and could cause injury to the candidate.
- Using the handrails or wall for weight bearing gives the candidate a mechanical advantage that may not be available to them on the fireground or demonstrates poor balance, conditioning or muscular endurance.

EVENT 2 HOSE DRAG

EQUIPMENT
- 200 feet (60 m) of double jacketed 1 3/4-inch (44-mm) hose - hose is marked at 8 feet (2.44 m) past the coupling at the nozzle and at 50 feet (15.24 m) past the coupling at the nozzle
- Automatic Nozzle - 6 lbs (± 1 lb), 3 kg (± .5 kg)
- Two 55-gallon (US) (208.2-liter) Drums secured together - bottom drum is filled with water or other ballast for weight

PURPOSE OF EVALUATION
This event is designed to simulate the critical tasks of dragging an uncharged hoseline from the fire apparatus to the fire occupancy and pulling an uncharged hoseline around obstacles while remaining stationary. This event challenges the candidate's aerobic capacity, lower body muscular strength and endurance, upper back muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, lower back stabilizers, biceps, deltoids, upper back, and muscles of the forearm and hand (grip).

EVENT
During this event, the candidate grasps an automatic nozzle attached to 200 feet (60 m) of 1 3/4-inch (44-mm) hose. The candidate places the hoseline over the shoulder or across the chest, not exceeding the 8-foot (2.44-m) mark. The candidate is permitted to run during the hose drag. The candidate drags the hose 75 feet (22.86 m) to a prepositioned drum, makes a 90° turn around the drum and continues an additional 25 feet (7.62 m). The candidate then stops within the marked 5-foot x 7-foot (1.52 m x 2.13 m) box, drops to at least one knee and pulls the hoseline until the hoseline's 50-foot (15.24-m) mark is across the finish line. During the hose pull, the candidate must keep at least one knee in contact with the ground and knee(s) must remain within the marked boundary lines. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:
- The candidate is given one warning to keep one knee down.
- The candidate is given one warning to keep the knees in bounds.
- The candidate is given one warning for taking one step out of the box.
- The candidate is permitted to run during the hose drag

The following practices constitute a failure:
- The candidate fails to go around the drum.
- The candidate travels outside of the marked path.
- The candidate takes two steps out of the back of the box.
- The candidate commits a second infraction for not keeping one knee in contact with the ground.
- The candidate commits a second infraction for the knees being outside of the marked boundary.

Reasons for failure:
- Running beyond the marked path gives the candidate a mechanical advantage by decreasing the distance required to pull the hose by hand. This advantage may not be available on the fireground. This demonstrates a lack of upper body strength by using lower body strength to compensate.
- By not keeping their knee on the floor a candidate could compensate for a deficiency in grip and upper body strength by standing up.
EVENT 3 EQUIPMENT CARRY

EQUIPMENT
- Rescue Circular Saw 32 ± 3 lbs (14.5 ± 1.3 kg); Chain Saw 28 ± 3 lbs (12.7 ± 1.3 kg) (blades guarded, fluids drained, spark plugs removed)
- Tool Cabinet
- 55-gallon [US] (208.2-liter) weighted drum

Purpose of Evaluation
This event is designed to simulate the critical tasks of removing power tools from a fire apparatus, carrying them to the emergency scene and returning the equipment to the fire apparatus. This event challenges the candidate’s aerobic capacity, upper body muscular strength and endurance, lower body muscular endurance, grip endurance, and balance. This event affects the aerobic energy system as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

EVENT
During this event, the candidate removes the two saws from the tool cabinet, one at a time, and places them on the ground. The candidate then picks up both saws, one in each hand, and carries them while walking 75 feet (22.86 m) around the drum, then back to the starting point. The candidate is permitted to place the saw(s) on the ground and adjust the grip. Upon return to the tool cabinet, the candidate places both saws on the ground, then picks up each saw one at a time, and replaces the saw in the designated space in the cabinet. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practice is allowed:
- The candidate is given one warning for running.
- The candidate is allowed to set the tools on the ground to adjust and re-establish the grip.

The following practices constitute a failure:
- The candidate drops either saw during the carry.
- The candidate commits a second infraction for running with the saws.

Reasons for failure
- Dropping the saws could injure the candidate and demonstrates poor grip strength or muscular endurance.
- Running with saws could cause injury if the candidate trips.

EVENT 4 LADDER RAISE AND EXTENSION

EQUIPMENT
- Two 24-foot (7.32-m) aluminum ground ladders
- Pivoting bracket for ladder raise
- Retractable Safety Lanyard for ladder raise
- Attaching brackets for ladder extension

PURPOSE OF EVALUATION
This event is designed to simulate the critical tasks of placing a ground ladder at a fire structure and extending the ladder to the roof or window. This event challenges candidate’s aerobic capacity, upper body muscular strength, lower body muscular strength, balance, grip strength, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

EVENT
During this event, the candidate walks to the top rung of the 24-foot (7.32-m) aluminum extension ladder, lifts the first rung at the unhinged end from the ground, and walks it up until it is stationary against the wall. This must be done in a hand over hand fashion, using each rung until the ladder is stationary against the wall. The candidate must not use the ladder rails to raise the ladder. The candidate immediately proceeds to the pre-positioned and secured 24-foot (7.32-m) aluminum extension ladder, stands with both feet within the marked box of 36 inches x 36 inches (91.44 cm x 91.44 cm) and extends the fly section hand over hand until it hits the stop. The candidate then lowers the fly section hand over hand in a controlled fashion to the starting position. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:
- The candidate is given one warning for missing any rung during the raise.
- The candidate is given one warning for a boundary violation during the ladder extension.

The following practices constitute a failure:
- The candidate commits a second infraction for missing any rung during the raise.
- The candidate allows the ladder to fall to the ground during the raise.
- The candidate releases their grip on the ladder and the safety lanyard activates.
- The candidate commits a second infraction for not remaining within the marked boundary during the ladder extension.
- The candidate does not control the halyard in a hand over hand manner.
- The candidate allows the halyard to slip in an uncontrolled manner.
Reasons for failure

- Skipping rungs would give a taller candidate an advantage over a shorter candidate and is therefore not permitted. It would also allow the candidate to throw the ladder up in the air which is both unsafe and unavailable to the candidate at a fire scene when the base of the ladder is not hinged to the ground.
- Failure to completely raise the ladder demonstrates poor grip and muscular strength.
- A candidate could gain an advantage by walking the yard backward to compensate for poor upper body strength. This compensation is not available on the fire ground where the ladder is not bolted to the fire structure.
- Failure to control the ladder indicates poor grip strength as well as muscular strength and endurance.

EVENT 5 FORCIBLE ENTRY

EQUIPMENT

- Forcible Entry Machine
- 10-pound (4.54-kg) Sledgehammer
- Toe-Box

PURPOSE OF EVALUATION

This event is designed to simulate the critical tasks of using force to open a locked door or to breach a wall. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, lower body muscular strength and endurance, balance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, glutes, triceps, upper back, trapezius, and muscles of the forearm and hand (grip).

EVENT

During this event, the candidate uses a 10-pound (4.54-kg) sledgehammer and strikes the measuring device in the target area until the buzzer signal is activated. The candidate's feet must remain outside the toe-box. After the buzzer is activated, the candidate places the sledgehammer on the ground. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate is given one warning for stepping inside the toe-box.

The following practices constitute a failure:

- The candidate fails to maintain control of the hammer while swinging.
- The candidate commits a second infraction for stepping inside the toe-box.

Reason for failure:

- Failure to maintain control of the hammer indicates poor grip strength and muscular endurance and could cause injury to the candidate and proctors.

EVENT 6 SEARCH

EQUIPMENT

- Search Maze

PURPOSE OF EVALUATION

This event is designed to simulate the critical task of searching for a fire victim with limited visibility in an unpredictable area. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, agility, balance, anaerobic endurance, and kinesthetic awareness. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: muscles of the chest, shoulder, triceps, quadriceps, abdominals, and lower back.

EVENT

During this event, the candidate crawls on hands and knees through a tunnel maze that is approximately 3 feet (91.44 cm) high, 4 feet (121.92 cm) wide and 64 feet (19.51 m) in length with two 90° turns. At a number of locations in the tunnel, the candidate navigates around, over and under obstacles. In addition, at two locations, the candidate crawls through a narrowed space where the dimensions of the tunnel are reduced. The movement is monitored/listened to as the candidate advances through the maze. If for any reason, the candidate chooses to end the event, the candidate calls out or raps sharply on the wall or ceiling and the candidate is then assisted out. Upon exit from the maze, the event is concluded. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate can return into the tunnel if they exit through the entrance.

The following practices constitute a failure:

- The candidate requests assistance from the proctor requiring the opening of an escape hatch or the entrance/exit covers.

Reasons for failure:

- Failure to finish the event indicates a lack of confidence in dark or confined spaces.
EVENT 7 RESCUE

EQUIPMENT
- 165-pound (74.84-kg) Mannequin (unclothed)
- Mannequin harness
- 55-gallon [US] (208.2-liter) weighted drum

PURPOSE OF EVALUATION
This event is designed to simulate the critical task of removing a victim or injured partner from a fire scene. This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).

EVENT
During this event, the candidate grasps a 165-pound (74.84-kg) mannequin by the handle(s) on the shoulder(s) of the harness (either one or both handles are permitted), drags it 35 feet (10.67 m) to a pre-positioned drum, makes a 180° turn around the drum, and continues an additional 35 feet (10.67 m) to the finish line. The candidate is not permitted to grasp or rest on the drum. It is permissible for the mannequin to touch the drum. The candidate is permitted to lower the mannequin to the ground to adjust their grip. The entire mannequin must be dragged past the marked finish line. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:
- The candidate receives one warning for grabbing or resting on the drum.
- The candidate is permitted to grab either one or both handles when dragging the mannequin
- The candidate is permitted to lower the mannequin to the ground to adjust their grip

The following practices constitute a failure:
- The candidate commits a second infraction for grabbing or resting on the drum.

Reasons for failure
- Use of the drum by either grasping or resting on it indicates a lack of muscular strength and endurance.

EVENT 8 CEILING BREACH AND PULL

EQUIPMENT
- Ceiling Breach and Pull Device
- 6-foot (1.83-m) Pike Pole

PURPOSE OF EVALUATION
This event is designed to simulate the critical task of breaching and pulling down a ceiling to check for fire extension. This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).

EVENT
During this event, the candidate removes the pike pole from the bracket, stands within the boundary established by the equipment frame, and places the tip of the pole on the painted area of the hinged door in the ceiling. The candidate fully pushes up the 60-lb hinged door in the ceiling with the pike pole three times. The candidate then hooks the pike pole to the 80-lb ceiling device and pulls the pole down five times. Each set consists of three pulls and five pushes. The candidate repeats the set four times. The candidate is permitted to stop and, if needed, adjust the grip. Releasing the grip or slipping from pike pole handle, without the pike pole falling to ground, does not result in a warning or constitute a failure. The candidate may re-establish the grip and resume the event. If the candidate does not successfully complete a repetition (i.e. complete the up and down motion), the proctor calls out "MISS" and the candidate must push or pull the apparatus again to complete the repetition. The event and the total test time ends when the applicant completes the final pull stroke repetition as indicated by the proctor who calls out "TIME".

The following practices are allowed:
- The candidate receives one warning for dropping the pike pole on the ground.
- The candidate receives one warning for stepping out of bounds.
- The candidate is permitted to stop and to re-establish grip

The following practices constitute a failure:
- The candidate commits a second infraction for stepping outside of the boundary marked by the testing apparatus.
- The candidate commits a second infraction for dropping the pike pole.

Reasons for failure
- Stepping out of bounds allows the candidate to use body weight to compensate for poor upper body strength, an advantage by that may not be an option on the fire ground.
- Failure to maintain control of the pike pole indicates poor grip strength and muscular endurance.
CHAPTER 6
CPAT ADMINISTRATION

CPAT ADMINISTRATION
Consistent CPAT administration is essential to the continued success of the CPAT program throughout North America. Adhering strictly to the policies and procedures in this manual ensure that test administration is consistent from one candidate to another and avoids any biases. This chapter must be followed to ensure CPAT Administrators are able to:

- Administer all aspects of the CPAT program.
- Choose a proper CPAT Venue.
- Decide whether or not to administer the CPAT based on environmental conditions.
- Register candidates for the CPAT.
- Administer the CPAT using the proper forms.
- Schedule candidates for the CPAT.
- Orient candidates on official test day.
- Stage waiting candidates on official test day.
- Assign support personnel to assist with the CPAT (i.e. Rehab, equipment maintenance, dress out, check in, filing, etc.).
- Assign roles and responsibilities to lead and event coordinators.
- Describe the legal necessity for following the CPAT requirements to the letter.
- Describe the requirements and purpose of the CPAT candidate orientation and practice sessions.

VENUE SELECTION
The venue selected to conduct the test is critical. The site must have a floor surface that will not give any candidate an unfair advantage or disadvantage and should be similar to that used during test validation. Therefore, the test must be conducted on a surface with friction values similar to that of an unpolished concrete floor.

The venue should have an area large enough to accommodate check-in/staging, test and rehabilitation areas. The check-in/staging area is dedicated to receiving candidates as they report for their CPAT. If possible, the check-in/staging area should be isolated from the actual CPAT site so arriving candidates are not distracted by the candidates actually performing the test. The test area must also be large enough so structures, walls or obstacles do not restrict a candidate's ability to perform the events.

A rehabilitation area must be provided to allow candidates recovery time before leaving the test site. In rehabilitation, proctors provide candidates with a shaded area where they can re-hydrate and have their vital signs monitored if medically indicated.

USING AN INDOOR SITE
Administering the CPAT indoors insures that environmental conditions are controlled no matter what time of year the test is offered. There are several physical requirements an indoor CPAT facility should have. Indoor CPAT facilities will vary depending on department budget, frequency of use, and available buildings. Listed are two extreme (large and small) examples of indoor CPAT facilities that are currently in use.

Large fairground exhibit hall or aircraft hangar
- 20,000 to 25,000 square feet of open space with a ceiling height of 24 feet (ladder modification will allow ceiling height of 18 ft.)
- 2,000 square feet of open space for workout area
- 2,000 square feet of air conditioned, well lit, classroom space
- 500 square feet of air-conditioned office space
- 1,000 square feet of storage space

Small warehouse
- 5,000 plus square feet of open space with ceiling height of 24 feet (ladder modification will allow ceiling height of 18 ft.)
- 100 — 200 square foot workout area
- 100 — 200 square foot classroom area
- 200 — 300 square feet of air-conditioned office space
- Ability to store extra props and tools within warehouse area. May be a space designated within the CPAT area but in a location where candidates are not permitted.

The area designated for the CPAT should have an air cooling and heating system (HVAC), adequate lighting and electrical capabilities to energize props. Air conditioning is preferred but due to the expense, evaporative cooling would be sufficient. In order to insure the highest level of safety, the area must be well lit. In addition, the area will require a 110/120-volt electrical outlet every 50 feet on each side to accommodate CPAT prop placement. Finally, the building must have restroom facilities for both females and males.

LOGISTICAL AND ENVIRONMENTAL FACTORS
Environmental factors can have a significant effect on a candidate's test performance. The test should be conducted in environmental conditions that optimize the candidate's safety and provide for consistency among candidates. The test must not be conducted in excessively hot, cold or wet conditions. Candidates must not be tested in an environment where the temperature is below 45°F (7°C), the
Apparent Heat Index (temperature and humidity) is greater than 95°F (35°C), sustained wind is greater than 20 mph (32 kph), or there is a measurable amount of rain (light drizzle only if working surfaces are safe to walk on and props, tools and test equipment can be kept dry).

TEST PROPS
Test props must be in the highest serviceable condition when positioned for the orientation, practice sessions and actual test. Each prop must be properly calibrated and affixed using the highest grade of attachment anchors. It is imperative that props be located in an area with sufficient space for candidates to maneuver their bodies and manipulate the prop. If possible, backup props should be held in reserve in the event that frontline equipment is damaged. Lines indicating the course direction also must be clearly marked. Candidates who experience a malfunctioning test prop must be allowed to re-test regardless of the time remaining and/or the event where the candidate experienced the malfunction.

COURSE LAYOUT
The CPAT can be constructed indoors, outdoors, within small confined areas or large open spaces. Whatever area is selected, it is important to follow all prop and course specifications as written in this manual. Failure to follow these specifications can jeopardize the validity of the test.

DESIGNING THE COURSE
The first step in designing the course and building the props is making sure you have all the right equipment. A complete prop list can be found in Appendix D including the necessary quantities and where to purchase the equipment. The list includes props that must be purchased through the IAFF-approved vendors as well as props that may be fabricated by fire department personnel.

Designing the course is easiest when ample space is available. The smaller the area the more difficult to design and build the course due to the number of turns that have to be included within the design. Following these steps when designing a course can save considerable effort:

Note: When laying out a course, all events must be positioned 85 feet apart. This means the base of the StepMill should be 85 feet away from the tip of the nozzle at event 2. If you cannot make a straight line from one event to the other, insert turns to create more distance. To measure the 85 feet is to use a 100-foot tape measure or a string that is 85 feet long (do not stretch) and have people to assist with creating turns in the middle as people hold each end at the respective props.

Step 1
Identify the area where the stationary items such as the search maze, forcible entry machine, and ladders will be located. Of the three, the most important location is the search maze. It should be positioned in a flat area where the space behind it is virtually unusable. The area where the search maze is located is critical because it is the most difficult of all the props to move. Before committing to the location where you think it should go, be sure to measure out all prop locations to be certain the entire course will fit in the space provided.

Step 2
Once the search maze is positioned, move away from the entrance and the exit to mark the positions of the forcible entry machine and dummy drag respectively. Continue to move away from these props and mark the next events in line. Be careful not to cross lines when possible. Crossing lines may cause the candidates to interfere with one another if more than one candidate is on the course. Other things to consider when positioning props:

- The StepMill in event one must be placed so one side is against a wall and a 120V power outlet is available within extension cord distance
- Event 1 should be located near the area where the candidates will be dressing out and warming up
- The Hose Drag needs at least 75' straight distance
- The Equipment Carry needs at least 75' straight distance
- If using a portable trailer, the ladders and forcible entry machine are mounted on the trailer so the 85' distance between these events is made using turns
- The rehabilitation area should be located near event 8 so that the candidates will not have to travel far after completing the test

Step 3
Once the general positions of the props have been identified, the next step is to assemble the props. Begin by setting up the Search Maze first. Re-check distance between events and mark final walking paths. Assemble all props to the specifications listed in Appendix D. The following is additional information that may assist when building the props:

EVENT 1 - STAIR CLimb
One side of the StepMill should be positioned against a wall that extends just higher than a candidate's head when he/she is standing on the top step of the StepMill. With the one side of the StepMill placed against the wall, the opposite handrail should be removed and the control console removed. The control console should be positioned on the proctor's stand that is located on the right side of
the StepMill. The proctor stand should be built in accordance with the specifications found in Appendix D. With the console in this position, the event proctor can better monitor the time while also having immediate access to the stop button. A candidate step must also be constructed. The step should be positioned at the base of the StepMill where the candidate mounts and dismounts the machine. The step should also meet the specifications found in Appendix D.

The 85' walk starts where the candidate steps off the StepMill on the ground and ends at the tip of the nozzle where the candidate picks up the hose to begin event two.

**EVENT 2 - HOSE DRAG**

The hose must be marked at 2 different locations. The first mark should be placed 8 feet from the coupling at the tip. This mark indicates where the candidate is allowed to pick up the hose to begin extending around the drum. The second mark is placed at the first coupling beyond the tip and is to indicate the section of the hose the candidate must pull into the 5' x 7' box.

The 75' from the nozzle to the drum and the 25' from the drum to the 5' x 7' box must be positioned in accordance with Appendix D.

The 85' walk starts where the candidate exits the 5' x 7' box to begin walking to the next event. The measurement starts at the point where the walk line meets the 5' x 7' box and ends at the base of the cabinet where the candidate removes the saws in event three.

**EVENT 3 - EQUIPMENT CARRY**

The equipment carry cabinet must be constructed in accordance with the specifications found in Appendix D.

The 85' walk starts at the center of the cabinet where the candidate places the saws and ends at the tip of the 24' extension ladder lying flat on the ground in event four.

**EVENT 4 - LADDER RAISE AND EXTENSION**

The halyard on the ladder used for flat raise should be removed. This halyard may be used as a back up for the upright extension ladder. With the halyard removed, the rungs should be taped to prevent the ladder from slipping while it is raised and lowered.

Remove dogs/locks on the upright extension ladder. This prevents "hang-ups" of ladder on rungs as it is being extended and lowered by the candidate. The manufacturer's halyard is used on the upright extension ladder; however, replacement halyards of the same type can be purchased at any hardware store.

The ladders must be positioned in accordance with the specifications found in Appendix D. NOTE: It makes no difference which ladder is on the left and which one is on the right as long as they are the proper distance apart.

The 85' walk starts where the candidate exits the 3' x 3' box at the base of the upright/extension ladder and ends directly below the face of the hitting pad of the forcible entry device in event five.

**EVENT 5 - FORCIBLE ENTRY**

The four posts that the forcible entry striking pad slides on must be well maintained and kept free from moisture. The slightest moisture will cause the posts to rust. Moisture will also cause the brake shaft within the unit to rust. Both of these areas of the forcible entry device must be kept clean to ensure proper calibration is maintained. The toe board should be constructed and positioned in accordance with the specifications found in Appendix D.

NOTE: The recommended tension on the forcible entry machine in the original edition of the CPAT guide was based upon the original Beta Tested Forcible Entry Machine. This machine was provided from New York City and was developed several years ago by a waste management engineer. During the CPAT development, the force required to successfully complete this event was compared to the force required to successfully force entry on an actual door. The original Beta version of the Forcible Entry machine had a V-Shaped Wedge that was driven between two brake pads. The tension on these brake pads was provided by 4 adjustable springs. This design was found to be inconsistent since the force to initiate the movement of the striking surface (300lbs) was drastically lower than the force at the end of the exercise (1,300lbs). Furthermore, this design was difficult to calibrate and maintain consistent resistance. To remedy these concerns, our current producer of the forcible entry machine (ALCO) redesigned the wedge and the tensioning device. Currently, the wedge has a minimal V-Shape and the tension is created by 8 airplane grade springs. This design provides a consistent resistance and requires far less calibration during the administration of the test. During the reliability study in Los Angeles County this new design was tested and compared to the Beta version. It was found that the new ALCO machine should be calibrated at 850 lbs. Although, this machine should usually hold its tension for an entire day of testing, the manufacturer recommends recalibrating it after every 15 users.

The 85' walk starts directly below the face of the hitting pad of the forcible entry device and ends at the midpoint of the horizontal face of the entrance to the search maze in event six.
Central Administration Directory

Superintendent .................................................................Dr. Paul McKendrick
Assistant Superintendent for Curriculum and Instruction ..................Dr. Elisabeth Davis
Assistant Superintendent for General Administration ......................Dr. Mike Daria
Chief School Financial Officer ...........................................Mr. Edward LaVigne
Executive Director of Human Resources ....................................Ms. Billie Kay Wingfield
Executive Director of Facilities .............................................Mr. Jeff Johnson
Director of Secondary Education ...........................................Mr. Robert Coates
Director of Federal Programs ...............................................Dr. Sandra Aldridge
Director of Special Education ..............................................Dr. Bruce Prescott
Director of Professional Development ......................................Ms. Richjeta Smith

Board of Education Members
Mr. Lee Garrison, Chairman
Ms. Earnestine Tucker, Vice Chairman
Mr. Erskine Simmons, Secretary
   Mr. Cason Kirby
   Mr. Harry Lee
   Mr. Marvin Lucas
   Mr. James Minyard
   Mr. Norman Crow

Board Meetings: The Tuscaloosa City Board of Education meets regularly on the first and third Tuesday each month at 6:00 p.m. at the Tuscaloosa Career and Technology Academy located at 2800 MLK, Jr. Boulevard, Tuscaloosa, Alabama 35401.

Website: Visit the Tuscaloosa City Schools at www.tusc.k12.al.us or www.tuscaloosacityschools.com for current information of interest.

Equal Education and Employment Opportunity Statement: It is the policy of the Tuscaloosa City Board of Education that no person in the school system shall on the basis of race, color, creed, religion, sex, age, national origin, or disability be denied employment, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in any program or activity as identified and defined by Section 504 of The Rehabilitation Act of 1973 (P.L. 93-112) and The Americans with Disabilities Act of 1990. For more information contact:

Mrs. Vickie Brown, 504 Coordinator.............................................(205) 759-3523
Dr. Mike Daria, Sexual Harassment Officer.................................(205) 759-3523
Ms. Billie Kay Wingfield, Title IX Coordinator, Gender Equity............(205) 759-3677

Questions from parents and students are always welcome. Contact your school principal for answers to questions regarding concerns at the local school level.
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INFORMATION FOR STUDENTS & PARENTS

It is the belief of the Tuscaloosa City School System that all students desire and deserve to become productive, successful participants in the world of the 21st century. Because each student is valuable and important to our future, the educational success of each student is the focus of every effort of the Tuscaloosa City School System.

Curriculum offerings in the Tuscaloosa City School System are designed to meet standards and guidelines established by the Alabama State Department of Education. Curriculum planning and student placement decisions reflect policies adopted by the Tuscaloosa City Board of Education. Parents are encouraged to consult the current Student/Parent Information Guide, school counselors, administrators, and teachers for additional information.

The courses offered by the Tuscaloosa City Schools are aligned with and based upon the Alabama State Courses of Study. Course offerings are designed to allow each student the opportunity to achieve his or her individual academic and career/technical goals. The availability of courses will depend on a sufficient number of students enrolling in accordance with state guidelines. The course catalog is designed to comply fully with the requirements of Title IX of the Educational Amendments of 1972 and local board of education policy. Local board policy states: "It is the policy of the Tuscaloosa City Board of Education that no student shall be excluded from participation in, be denied the benefits of, or subjected to discrimination in any program or activity, on the basis of sex, race, age, religion, belief, national origin, disability, or ethnic group."

If complaints and charges of discrimination cannot be resolved through the normal channels of the student grievance procedure, one may file such complaints, in writing, with the Coordinator of Title IX, Title VI, or Section 504 activities at the Central Office of the Tuscaloosa City Schools, P.O. Box 038991, Tuscaloosa, Alabama 35403 (phone (205) 759-3700). A copy of the grievance procedure is available at the Central Office.

General Information
High school class schedules are based on a seven-period day with an additional 36-minute period for enrichment or intervention opportunities. Students are required to take one of each four academic core courses (English, math, science, and social studies) each year. Counselors will provide guidance for course selections based on the number of required core credits that have already been obtained to fulfill graduation requirements. All students will work with counselors or other local school personnel to select courses to earn the required number of Carnegie units (credits) for the chosen diploma and/or endorsement.

Student Placement
Various components will be analyzed to determine student placement in courses. EXPLORE and PLAN scores are valid predictors to determine student placement in regular versus honors courses. Other test scores and averages will be examined, along with the student career interest inventory, to determine student placement and course sequence to ensure the student has a 4-year plan for success based on personal interests and college and career plans. Teacher recommendations, parent/guardian options, and student performance standards will also be taken into consideration when determining student placement in the core content areas and electives as indicated in the Academic Guide. Parents or students having questions about the placement process or placement recommendations that are provided on the 4-year plan should contact the counselor for clarification. If there are still concerns following counselor clarification, a meeting should be arranged for the Central Office Curriculum Team 4-year planning partner and local school counselor. The principal and counselor have the responsibility to make the final decision regarding student placement.

Course Selection Forms and 4-Year Plans
Central Office Curriculum Team Members and counselors will meet individually with students to advise about course offerings, prerequisites, and placement based on assessment scores and career interests. A 4-year plan will be developed and/or revised through the advisement process and sent home. This plan will be used to advise the student for 2014-2015 courses in conjunction with the course selection form. Parents will be provided with a place to either sign the form agreeing to suggested courses, "opt out" of a course and provide a rationale, or request a conference with the local school in regards to suggested courses. When students and/or parents do not return forms signed, school personnel will attempt to contact the parents and then finalize for scheduling.

Prerequisites
Prerequisites are listed as indicators of the recommended foundation of learning, grade level, and/or achievement standard needed to be successful in a particular course. Prerequisites provide guidance for teachers, parents, counselors, and students. They provide additional information to help plan students’ successful progress through the variety of middle and high school programs offered by the Tuscaloosa City Schools.

Course Schedules
Each high school student selects seven (7) courses and alternate choices for the upcoming academic year. Student schedules for specific courses, teachers, and semesters are assigned by computer. Some high school courses may be offered only during a specific semester—fall or spring. Schools attempt to balance academic units and elective units each semester.
Every effort is made to schedule each student into courses that reflect his/her first choice. Course availability is affected by many factors: student demand, school enrollment, personnel availability, and funding constraints.

Dates for early schedule pick-up will be announced in the local media. To obtain an early schedule, the student must pay all fees required for courses selected.

**Schedule Changes**
No fees will be charged for any schedule change. Schedule changes are not encouraged after the fifth day of a semester. Schedule changes will only be permitted for graduation requirements or diploma options (if applicable) and must be approved by administration. Students will not be allowed to request schedule changes for minor issues (teacher preference, etc.).

**Fees**
No fees shall be charged for courses required for graduation. In courses not required for graduation, reasonable fees will be set for courses requiring laboratory and shop materials and equipment, provided, however, that such fees shall be waived for students who cannot afford to pay the fee. (Code of Alabama § 16-13-13)

Fees for courses not required for graduation must be paid at the time of schedule pick-up. Schools may allow pre-payment or payment of a deposit on fees when schedule forms are returned during registration or before the end of school for the current year. Please contact the school principal about fee waivers.

**Valedictorian and Salutatorian**
There will be one valedictorian and one salutatorian for each high school. To be eligible for consideration as valedictorian or salutatorian, a student must have been enrolled in the Tuscaloosa City Schools for one calendar year prior to graduation. To be eligible for valedictorian or salutatorian a student must be a candidate for the Honors, AP, or IB diplomas. Grade point average calculations will be determined for grades earned in grades 9-12 including the second term of the senior year. Calculations will be carried to the fourth decimal place to determine the highest grade point average (valedictorian) and second highest grade point average (salutatorian). All students with a grade point average of 4.0 and higher who are pursuing IB, AP, or Honors diplomas will be recognized as honor graduates.

**Graduation Ceremony**
Diplomas will be awarded to students who fulfill all of the local and state graduation requirements as required by the diploma option chosen. All requirements must be met for participation in the graduation ceremony. Requirements are specified in this document and the Tuscaloosa City School System Student/Parent Information Guide.

**GRADUATION REQUIREMENTS & DIPLOMAS**

**Online Experience and “Career Preparedness” Course Requirement**
Beginning with the ninth grade class of 2009-2010, the Alabama State Board of Education has mandated implementation of an “online experience,” as a requirement for the high school diploma. The online experience is defined as “a structured-learning environment that utilizes technology — consistently and regularly — with Intranet/Internet-based tools and resources as the delivery method for instruction, research, assessment, and communication.” The student may obtain online credit by:

1. Taking an online course;
2. Participating in a teacher-led online learning experience led/managed through a virtual environment or through blended instruction which balances traditional teacher instruction and appropriately designed online experiences as outlined in the “High School Distance Learning: Online/Technology Enhanced Course or Experience Guidance;” or
3. Participating in online experiences incorporated into required courses for the Alabama High School Diploma.

Beginning with all 2013-2014 freshmen, all incoming high school students are required to take the Career Preparedness course, which will incorporate three components: career development and academic planning, computer skill application, and financial literacy knowledge. This course is designed to help prepare all students for college and career readiness and is also designed to meet the required 20-hour online experience.

**Promotion/Grade Classification**
Based on state requirements and the Tuscaloosa City Schools Board approval in the fall of 2012, students must earn a minimum of 24 credits (Carnegie units) to graduate with a high school diploma. For reclassification status for promotion and graduation, the guidelines are as follows:

1. To be a tenth grader (sophomore), a student must have earned 6 credits.
2. To be an eleventh grader (junior), a student must have earned 12 credits.
3. To be a twelfth grader (senior), a student must have earned 18 credits.
4. To graduate, a student must have earned a minimum of 24 credits.

Credits to fulfill graduation requirements must be earned in grades 9-12 (with the current exception of Algebra I, Geometry, Career Preparedness: Part A, and Foreign Language (Level I) in seventh and eighth grade). Colleges, universities, and post-secondary training schools have varying entrance requirements. Students will receive
individual and group advisement on course selection based
on various criteria and assessments. Additionally, students
are encouraged to consult local school personnel and post-
secondary institutions to determine best selections.
Logical and sequential progression through courses is
recommended to provide students with the best
opportunities for academic success. Students are
couraged to enroll in courses that will challenge them at
the highest level. Through the 4-year planning process,
students who have EXPLORE and PLAN scores that
indicate they have the skills needed to take Honors and/or
AP courses will be placed in those courses and will require
a parent/guardian “opt out” request and/or rationale to
change the students’ placement.

2013-2014 & Future
Alabama High School Diploma

Beginning with the ninth grade class of 2013-2014, the
Alabama High School Diploma requires 24 credits to
graduate. This diploma differs from past diplomas in that
there is only one approach to the Alabama High School
Diploma, which removes the need for endorsements or the
Alabama Occupational Diploma (AOD). The focus will be
on coursework taken that necessitates a clearly articulated
and individualized 4-year high school plan developed for
each student based on the results of the EXPLORE
academic and career interest assessment, middle school
coursework, and the Kuder career assessment inventory.
All students will be required to create a 4-year plan in
Kuder during their eighth grade year and annually update it to properly guide course selections.

<table>
<thead>
<tr>
<th>Areas of Study</th>
<th>Requirements &amp; Equivalent Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4 credits</td>
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<tr>
<td>English 9, 10, 11, and 12 or any AP/IB or post-secondary equivalent option of these courses.</td>
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</tr>
<tr>
<td>Mathematics</td>
<td>4 credits</td>
<td></td>
</tr>
<tr>
<td>Algebra I, Geometry, and Algebra II with Trigonometry or Algebra II, or their equivalent. Additional courses to complete the four credits in mathematics must be chosen from the Alabama Course of Study: Mathematics or CTE/AP/IB equivalent courses.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>4 credits</td>
<td></td>
</tr>
<tr>
<td>Biology and a physical science (Physical Science or Chemistry) The third and fourth science credits may be used to meet both the science and CTE course requirement and must be chosen from the Alabama Course of Study: Science or CTE/AP/IB equivalent courses.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td>4 credits</td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>1 credit</td>
<td></td>
</tr>
<tr>
<td>LIFE (Personal Fitness) One JROTC credit may be used to meet this requirement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>0.5 credits</td>
<td></td>
</tr>
<tr>
<td>Alabama Course of Study: Health Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Preparedness</td>
<td>1 credit</td>
<td></td>
</tr>
</tbody>
</table>
Science, AP Physics B, AP Physics C: Electricity and Magnetism, AP Physics C: Mechanics

**IB Courses:** International Baccalaureate courses may only be offered through an approved IB Diploma Programme. Course choices include any subject from IB’s Group 4: Experimental Sciences: Biology SL, Biology HL, Chemistry HL, Chemistry SL, Design Technology HL, Design Technology SL, Physics HL, Environmental Systems and Societies SL, SDE Approved Courses.

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### Areas of Study

<table>
<thead>
<tr>
<th>Requirements &amp; Equivalent Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Studies</strong></td>
<td>4</td>
</tr>
<tr>
<td>World History, U.S. History x 2, and Government/Economics or AP/IB/post-secondary equivalent courses</td>
<td></td>
</tr>
<tr>
<td><strong>AP Courses:</strong> AP United States History, AP World History, AP European History, AP Comparative Government &amp; Politics, AP United States Government &amp; Politics, AP Macroeconomics, AP Microeconomics, AP Human Geography, AP Psychology</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Education</strong></td>
<td>1</td>
</tr>
<tr>
<td>LIFE (Personal Fitness)</td>
<td></td>
</tr>
<tr>
<td>One JROTC or other physical activity-based courses may be used to meet this requirement.</td>
<td></td>
</tr>
<tr>
<td><strong>Health Education</strong></td>
<td>0.5</td>
</tr>
<tr>
<td>Alabama Course of Study: Health Education. Foundations of Health Science</td>
<td></td>
</tr>
<tr>
<td><strong>Career Preparedness</strong></td>
<td>1</td>
</tr>
<tr>
<td>Career Preparedness Course Career Academic Planning, Computer Applications, Financial Literacy</td>
<td></td>
</tr>
<tr>
<td><strong>CTE and/or Foreign Language and/or Arts Education</strong></td>
<td>3</td>
</tr>
<tr>
<td>Students choosing CTE, Arts Education, and/or Foreign Language are encouraged to complete two courses in sequence. Arts Education AP Courses, Arts Education IB Courses, Foreign Language AP Courses, Foreign Language IB Courses</td>
<td></td>
</tr>
</tbody>
</table>

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### Electives

| Code of Alabama, 1975, regulations require LEAs to offer electives. | 2.5 |

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**New Diploma Frequently Asked Questions:**

1. When will the new diploma be implemented? This will apply to all students beginning with the ninth grade class of 2013-2014.

2. Will this diploma replace all variations of the diploma as in the advanced diploma? Yes, local education agencies may add endorsements.

3. What is the purpose for making this change? The purpose is to allow more flexibility for students in pursuing their interests. There are many different courses students may take with this diploma; everyone will not take the same courses just because there is one diploma.

4. Can a CTE course be used to meet the math requirement and also be used to meet the CTE/Foreign Language/Arts Education requirement? Yes, it could be used to meet the requirement, but a student cannot earn two credits for the same course. So, the student would have the opportunity to earn an additional credit. Also, the CTE class must be an approved equivalent course for math.

5. Will this be the last year of Alabama Occupational Diploma (AOD) or will current ninth, tenth, and eleventh special education students that are currently working toward an AOD remain on AOD until they graduate? Students currently working toward an AOD who will be tenth and eleventh graders next year may receive a regular diploma if they earn course credit for the AOD. Ninth graders in 2013-14 will be the first class to work towards the new diploma.

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**Graduation Certificate**

Special education students whose individualized education plans (IEPs) identify the graduation certificate as the appropriate exit credential may receive the graduation certificate. Students whose IEP goals for grades 9-12 are met may participate in graduation ceremonies and receive the graduation certificate.
Alabama Diploma Options & Requirements

COHORT YEAR - 2015
"Rising Seniors"

Alabama High School Diploma with Advanced Academic Endorsement
*With or without Career Tech Endorsement
*ALL students must successfully complete Algebra II with Trigonometry for advanced endorsement

First Choice Option
Students must “opt out” of Advanced Diploma

Alabama High School Diploma with Advanced Academic Endorsement
With or without Career Tech Endorsement

ACT End-of-Course Tests
Students will NOT be required to pass the AHSGE

Career Tech Endorsement
3 courses in a sequence
Advanced CTE = 3 courses in a sequence plus Algebra II with Trigonometry

24 TOTAL CREDITS

COHORT YEAR – 2016
"Rising Juniors"

ALL Students (new requirement)
Must successfully complete Algebra II (or equivalent) or Algebra II with Trigonometry

Alabama High School Diploma with Advanced Academic Endorsement
*With or without Career Tech Endorsement
*ALL students must successfully complete Algebra II with Trigonometry for advanced endorsement

First Choice Option
Students must “opt out” of Advanced Diploma

Alabama High School Diploma
With or without Career Tech Endorsement

ACT End-of-Course Tests

Career Tech Endorsement
3 courses in a sequence
Advanced CTE = 3 courses in a sequence plus Algebra II with Trigonometry

24 TOTAL CREDITS

COHORT YEAR
“Rising Sophomores (2017) & Freshmen (2018)”

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>9, 10, 11, and 12 or any AP/IB or post-secondary equivalent option of these courses</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Algebra I, Geometry, and Algebra II with Trigonometry or Algebra II, or their equivalent. Additional courses to complete the four credits in mathematics must be chosen from the Alabama Course of Study: Mathematics or CTE/AP/IB equivalent courses.</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
</tr>
<tr>
<td>Biology and a physical science (Physical Science or Chemistry) The third and fourth science credits may be used to meet both the science and CTE course requirement and must be chosen from the Alabama Course of Study: Science or CTE/AP/IB equivalent courses.</td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>LIFE (Personal Fitness)</td>
<td></td>
</tr>
<tr>
<td>One JROTC credit may be used to meet this requirement</td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>0.5</td>
</tr>
<tr>
<td>Alabama Course of Study: Health Education</td>
<td></td>
</tr>
<tr>
<td>Career Preparedness</td>
<td>1</td>
</tr>
<tr>
<td>Career Preparedness Course (Career and Academic Planning, Computer Applications, Financial Literacy)</td>
<td></td>
</tr>
<tr>
<td>CTE and/or Foreign Language</td>
<td>3</td>
</tr>
<tr>
<td>and/or Art Education</td>
<td></td>
</tr>
<tr>
<td>Students choosing CTE, Arts Education, and/or Foreign Language are encouraged to complete two courses in sequence</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>2.5</td>
</tr>
<tr>
<td>Total Credits Required for Graduation</td>
<td>24</td>
</tr>
</tbody>
</table>

Additional Tuscaloosa City Schools Diploma Options & Requirements

2014-2015 Seniors & Juniors

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honors Diploma</td>
<td>4</td>
</tr>
<tr>
<td>Advanced placement courses may substitute for courses listed</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>Four credits to include the equivalent of Honors English 9, 10, 11, and 12</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Four credits to include the equivalent of Algebra I, Geometry, Algebra II w/Trig, and 1 additional advanced math course</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>4</td>
</tr>
<tr>
<td>Four credits to include the equivalent of Honors Biology and 3 credits of advanced sciences to include 1 unit of physical science</td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td>4</td>
</tr>
<tr>
<td>Four credits to include the equivalent of Honors World History/Geography from 1300, 3 advanced level social studies units to include U.S. History to 1877, U.S. History from 1877, Government/Economics</td>
<td></td>
</tr>
<tr>
<td>Foreign Language</td>
<td>2</td>
</tr>
<tr>
<td>Must be same foreign language</td>
<td>2 units</td>
</tr>
</tbody>
</table>
### Advanced Placement Diploma

The AP Diploma requires an AP course in each academic core and an additional academic AP elective course.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>Four credits to include the equivalent of Honors English 9, 10, 11, and 12 with 1 AP</td>
<td>4</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>Four credits to include the equivalent of Algebra I, Geometry, Algebra II w/Trig, PRecalculus, and 1 AP course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td>Four credits to include the equivalent of Honors Biology and 3 additional advanced sciences to include 1 unit of physical science and 1 AP course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Social Studies</strong></td>
<td>Four credits to include the equivalent of Honors World History/Geography from 1500</td>
<td>4</td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>Must be same foreign language</td>
<td>2</td>
</tr>
</tbody>
</table>

### International Baccalaureate

Central High School ONLY

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>Four credits to include the equivalent of Honors English 9, 10, and IB English 11,12</td>
<td>4</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>Four credits to include the equivalent of Algebra I, Geometry, Algebra II w/Trig, PRecalculus, and AP Calculus or AP Statistics</td>
<td>4</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td>Four credits to include the equivalent of Honors Biology or Chemistry, IB Chemistry or Physics, IB Biology, or AP Physics</td>
<td>4</td>
</tr>
<tr>
<td><strong>Social Studies</strong></td>
<td>Four credits to include the equivalent of Honors World History/Geography from 1500, History of Americas I, IB History of the Americas 2, and IB 20th Century World Studies</td>
<td>4</td>
</tr>
<tr>
<td><strong>Foreign Language</strong></td>
<td>Must be same foreign language</td>
<td>2</td>
</tr>
</tbody>
</table>

### 2013-2014 Freshman Class & Future Classes

**Alabama High School Diploma**

**With Academic Distinction**

- Successfully completes a minimum of 2 AP/IB or post-secondary (dual enrollment/dual credit) equivalent options
- Successfully completes a minimum of 2 Foreign Language courses in the same sequence
- Maintain a minimum GPA of 3.0

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>4 credits</td>
<td>English 9, 10, 11, and 12 or any Honors, AP/IB or post-secondary equivalent option of these courses</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>4 credits</td>
<td>Additional course to complete the four credits in mathematics must be chosen from the Alabama Course of Study: Mathematics or CTE/AP/IB equivalent courses.</td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td>4 credits</td>
<td>Biology, Chemistry, and Physics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The fourth science credit must be chosen from the Alabama Course of Study: Science or CTE/AP/IB equivalent courses.</td>
</tr>
<tr>
<td><strong>Social Studies</strong></td>
<td>4 credits</td>
<td>World History, U.S. History X 2, and Government/Economics or Honors, AP/IB or equivalent courses</td>
</tr>
<tr>
<td><strong>Physical Education</strong></td>
<td>1 credit</td>
<td>LIFE (Personal Fitness)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One JROTC credit may be used to meet this requirement</td>
</tr>
<tr>
<td><strong>Health Education</strong></td>
<td>0.5 credits</td>
<td>Alabama Course of Study: Health Education</td>
</tr>
<tr>
<td><strong>Career Preparedness</strong></td>
<td>1 credit</td>
<td>Career Preparedness Course (Career and Academic Planning, Computer Applications, Financial Literacy)</td>
</tr>
<tr>
<td><strong>CTE and/or Foreign Language</strong></td>
<td>3 credits</td>
<td>Students choosing CTE, Arts Education, and/or Foreign Language are encouraged to complete two courses in sequence</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td>2.5 credits</td>
<td>ACT End-of-Course Tests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 TOTAL CREDITS</td>
</tr>
</tbody>
</table>
ENGLISH/LANGUAGE ARTS

Passing each grade level in English is a prerequisite for enrolling in the next course.

200005 English 9
Fee: none 2 semesters, 1 credit
Prerequisite: none

This freshman English course provides rigorous instruction in developing reading, writing, listening, and speaking skills. Using the College and Career Readiness foundation, the course expands on traditional concepts and applies them to modern, 21st century demands. The course will include an overview of the conventions of Standard English grammar and usage. The study of literature will require students to read and respond to literature and literary nonfiction, with emphasis on world literature, of increasing sophistication to gain literary and cultural knowledge. Students will write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence; will write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content; will write narratives using effective techniques; and will conduct short and sustained research projects. This course fulfills the graduation requirement of one credit of English.

200009 English 10
Fee: none 2 semesters, 1 credit
Prerequisite: English 9 or equivalent

This sophomore level English course provides rigorous instruction in developing reading, writing, listening, and speaking skills. Using the College and Career Readiness foundation, the course expands on traditional concepts and applies them to modern, 21st century demands. The course will include an overview of the conventions of Standard English grammar and usage. The study of literature will require students to read and respond to literature and literary nonfiction, including early American literature, of increasing sophistication to gain literary and cultural knowledge. Students will evaluate intricate arguments and develop the capacity to surmount the challenges posed by complex texts. Students will write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. Students will also write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content; will write narratives using effective techniques; and will conduct short and sustained research projects. This course fulfills the graduation requirement of one credit of English. Based on ACT's research for adequate college and/or career readiness, English 10 is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

200006 Honors English 9
Fee: none 2 semesters, 1 credit
Prerequisites: EXPLORE score of 13 or higher, 85 or higher in Honors English 8, or student performance and/or teacher/counselor recommendation.

Using the College and Career Readiness foundation, Pre-AP teaching strategies, and National Math and Science Initiative (NMSI) AP resources and materials, the course expands on traditional concepts and applies them to modern, 21st century demands in an accelerated pace of instruction. This freshman level English course is designed for students who plan to take advanced courses. The course provides rigorous instruction in developing reading, writing, listening, and speaking skills. The course will incorporate an overview of the conventions of Standard English grammar and usage through literature and writing. The study of literature will require students to read and respond to a substantial amount of complex fiction and nonfiction texts with a focus on world literature. Students will write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. Students will also write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content; will write narratives using effective techniques; and will conduct short and sustained research projects. This course fulfills the graduation requirement of one credit of English.

200010 Honors English 10
Fee: none 2 semesters, 1 credit
Prerequisites: EXPLORE score of 13 or higher, 85 or higher in Honors English 9, or student performance and/or teacher/counselor recommendation.

Using the College and Career Readiness foundation, Pre-AP teaching strategies, and National Math and Science Initiative (NMSI) AP resources and materials, the course expands on traditional concepts and applies them to modern, 21st century demands in an accelerated pace of instruction. This sophomore level English course is designed for students who plan to take advanced courses. The course provides rigorous instruction in developing reading, writing, listening, and speaking skills. The course will incorporate an overview of the conventions of Standard English grammar and usage through the study of literature and writing. The study of literature will require students to
read and respond to literature and literary nonfiction, including early American literature, of increasing sophistication to gain literary and cultural knowledge. Students will evaluate intricate arguments and develop the capacity to surmount the challenges posed by complex texts. Students will write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. Students will also write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content; will write narratives using effective techniques; and will conduct short and sustained research projects. This course fulfills the graduation requirement of one credit of English.

**200013 English 11**

Fee: none 2 semesters, 1 credit  
Prerequisite: English 10 or the equivalent

This junior level English course provides rigorous instruction in College and Career Readiness Standards in reading, writing, listening, and speaking skills. This course combines a study of modern American literature with a study of grammar and composition. The students survey outstanding American authors and literature representing these literary types: short story, novel, poetry, drama, and essay. The student will write argumentative, informative, and narrative texts and will conduct short, as well as more sustained, research projects. This course fulfills the graduation requirement of one credit of English. Based on ACT's research for adequate college and/or career readiness, English 11 is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

**200014 Honors English 11**

Fee: none 2 semesters, 1 credit  
Prerequisites: PLAN score of 17, Honors English 10, and/or teacher/counselor recommendation

Using the College and Career Readiness foundation, AP teaching strategies, and National Math and Science Initiative (NMSI) AP resources and materials, this junior level English course is designed for students who plan to take advanced courses. The course provides accelerated, rigorous instruction in reading, writing, listening, and speaking skills. This course combines a study of modern American literature with a study of grammar and composition. The students survey outstanding American authors and literature representing these literary types: short story, novel, poetry, drama, and essay. The student will write argumentative, informative, and narrative texts and will conduct short, as well as more sustained, research projects. Students are expected to have achieved a mastery of mechanics (punctuation, spelling, agreement) that facilitate extensive writing and revision. This course fulfills the graduation requirement of one credit of English.

**200016 Advanced Placement (AP) Language and Composition**

Fee: none 2 semesters, 1 credit  
Prerequisite: ACT score of 22 or higher, Honors English 10, English 10, Honors English 11, IB English 11, or teacher/counselor recommendation.  
Note: Although this course is recommended for eleventh grade, this class can be taken in either the eleventh or twelfth grade.

The course content of Advanced Placement (AP) Language and Composition is guided by the College Board's The Advanced Placement Course of Study. The course is designed for the advanced English student who wants to earn college credit or advanced placement in college courses based upon the results of the AP examination. The AP English Language and Composition course is designed to help students become skilled readers of prose written in a variety of periods, disciplines, and rhetorical contexts and to become skilled writers who can compose for a variety of purposes based on State Course of Standards. Through writing and reading in this course, students should become aware of the interactions among a writer's purposes, audience expectations, and subjects, as well as the way generic conventions and the resources of language contribute to effective writing. American and British literature are a part of the course content in satisfaction of the Alabama Courses of Study for the literature requirements in both grades 11 and 12. Students will receive a 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

**200021 Language A1, SL, IB (International Baccalaureate) English 11**

Fee: none 2 semesters, 1 credit  
Prerequisites: English 10 or Honors English 10 and admission to the IB Programme  
(Offered at Central High School)

IB English 11 focuses on expository writing through a study of sentence, paragraph, and essay structures. Students study American and world literature as a basis for literary analysis. Works of literature from the IB Prescribed Book List and the IB World Literature List will be included in the course content. Reading assignments outside of class will also be required.

**200017 English 12**

Fee: none 2 semesters, 1 credit  
Prerequisite: English 11 or equivalent

English 12 is a senior level course that provides rigorous instruction in College and Career Readiness Standards in reading, writing, listening, and speaking skills and integrates a historical survey of British literature with a
study of grammar and composition. The students will survey major authors, works, and literary periods with a focus on British literature. Students will engage in critical listening, speaking, reading, and writing activities designed to integrate the strands of the language arts and further develop their thinking and problem-solving abilities. The student will write argumentative, informative, and narrative texts and conduct short, as well as more sustained, research projects. This course fulfills the graduation requirement of one credit of English. Based on ACT's research for adequate college and/or career readiness, English 12 is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

200018 **Honors English 12**
Fee: none 2 semesters, 1 credit
Prerequisite: ACT score of 18 or higher, Honors English 11, IB English 11, or teacher/counselor recommendation

Honors English 12 is senior level advanced course designed for the student who aspires to post-secondary college. This course provides accelerated, rigorous instruction in reading, writing, listening, and speaking skills and integrates a historical survey of literature with a study of grammar and composition. The students will survey major authors, works, and literary periods with a focus on American and British literature. Students will write argumentative, informative, and narrative texts and conduct short, as well as more sustained, research projects. This course fulfills the graduation requirement of one credit of English.

200020 **Advanced Placement (AP) Literature and Composition**
Fee: none 2 semesters, 1 credit
Prerequisite: ACT score of 22 or higher, Honors English 10, Honors English 11, IB English 11, and/or teacher/counselor recommendation.

Note: Although this class is recommended for eleventh grade, this class can be taken in either the eleventh or twelfth grade.

The course content of AP Literature and Composition is guided by the College Board’s *The Advanced Placement Course of Study*. The course is designed for the advanced English student who wants to earn college credit or advanced placement in college courses based upon the results of the AP examination. The AP English Literature and Composition course is designed to engage students in the careful reading and critical analysis of imaginative literature based on the State Course of Studies Standards. Through the close reading of selected texts, students can deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students should consider a work’s structure, style, and themes, as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone. American and British literature are a part of the course content in satisfaction of the Alabama Courses of Study literature requirements for grades 11 and 12. Literary studies include classical and contemporary works from Europe, Great Britain, and the United States. Students read extensively for written and verbal analysis. The workload in this class requires students to work at an accelerated pace. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

200022 **Language A1, HL, IB (International Baccalaureate) English 12**
Fee: none 2 semesters, 1 credit
Prerequisite: IB English 11
(Offered at Central High School)

IB English 12 continues the study of expository writing through a study of paragraph and essay structures and literary selections. Students will study British and World literature as a basis for literary analysis. Works of literature from the IB Prescribed Book List and the IB World Literature List are included in the content of this course. This course prepares students to take the IB examination in May.

700005 **English Essentials (grade 9)**
Fee: none 2 semesters, 1 credit each
Prerequisite: IEP team decision

This ninth grade course provides students with a practical knowledge of language and literature. The course also includes the refinement of reading, writing, editing, and speaking skills. It is designed to prepare students for post-secondary education and employment.

700006 **English Essentials (grade 10)**
Fee: none 2 semesters, 1 credit each
Prerequisite: IEP team decision

This tenth grade course provides students with the practical knowledge of language and literature. The course also includes the refinement of reading, writing, editing, and speaking skills. It is designed to prepare students for post-secondary education and employment.

700007 **English Essentials (grade 11)**
Fee: none 2 semesters, 1 credit each
Prerequisite: IEP team decision

This eleventh grade course provides students with practical knowledge of language and literature. The course also includes the refinement of reading, writing, editing, and speaking skills. It is designed to prepare students for post-secondary education and employment.

700008 **English Essentials (grade 12)**
Fee: none 2 semesters, 1 credit each
Prerequisite: IEP team decision
This twelfth grade course provides students with a practical knowledge of language and literature. The course also includes the refinement of reading, writing, editing, and speaking skills. It is designed to prepare students for post-secondary education and employment.

200043 Speech
Fee: none 2 semesters, 1 credit
Prerequisite: none

This elective course is designed to enhance students oral communication skills. Students will participate in group discussions, role-play job interviews, do various types of speeches, study debate, and be introduced to drama. The computer will be used extensively to do research for speeches to inform, persuade, and to view sample speeches. Presentation software will also be used.

200051 Journalism 1
Fee: $25 2 semesters, 1 credit
Application required

In this elective course, students learn to write like a journalist. They will learn to write news stories, feature stories, sports stories, columns, editorials, and reviews. Students will learn reporting and editing skills. In addition, photography and newspaper design will be studied. Students will have an opportunity to draw cartoons and graphic art. Students will sell ads and use a computer to write, edit, and design pages for the school newspaper. Students will learn to safely use the Internet to blog, network, and to post photographs and video online. All course work is geared toward producing the student print and online newspaper.

200052 Journalism 2
Fee: $25 2 semesters, 1 credit
Prerequisite: Application

This elective course is designed for students who have some knowledge of and an interest in newspaper writing and design. In this course, students have opportunities to enhance their reporting, writing, and editing skills. They will sell ads, take photographs, and use the computer to design ads, information graphics, and newspaper pages. Students will have opportunities to draw cartoons and graphic art. Students will learn to safely use the Internet to blog, network, and to post photographs and video online. All course work is geared toward producing the student print and online newspaper.

200037 English Intervention
Fee: None 2 semesters, 1 credit
Prerequisite: EXPLORE or PLAN scores, counselor/teacher recommendation, or other scores as deemed appropriate in 4-year plan
Note: Students in grades 9, 10, 11, or 12 may be enrolled in this course.

This course provides students with remedial work below grade level in reading, literature, writing and language, research and inquiry, oral and visual communication skills, vocabulary study, mechanics, grammar and usage, spelling, and study skills.

200061 Reading Intervention
Fee: None 2 semesters, 1 credit
Prerequisite: EXPLORE or PLAN scores, counselor/teacher recommendation, or other scores as deemed appropriate in 4-year plan
Note: Students in grades 9, 10, 11, or 12 may be enrolled in this course.

This elective course is designed to help students increase reading comprehension and basic phonemic awareness skills using high-interest, low-level texts while incorporating online assessments and practices. Scripted reading programs may be used in this course, along with other strategies to help students build on the basic foundation skills.

802204 Content Textual Reading
Fee: None 2 semesters, 1 credit
Prerequisite: Counselor/teacher recommendation or other scores as deemed appropriate in 4-year plan
Note: Students in grades 9, 10, 11, or 12 may be enrolled in this course.

This elective course is designed to help students increase reading skills with an emphasis on reading comprehension, across all subjects, above and beyond instruction provided in required courses.

### MATHEMATICS

#### Example Course Sequences

**Students who successfully complete**

**Algebra I in grade 8**

<table>
<thead>
<tr>
<th>OPTION I</th>
<th>9th</th>
<th>Geometry/Honors Geometry</th>
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<tbody>
<tr>
<td>10th</td>
<td>Algebra II with Trigonometry</td>
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<td>12th</td>
<td>Pre-Calculus</td>
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<th>OPTION III</th>
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<td>Pre-Calculus</td>
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<td>12th</td>
<td>AP Math Course (Calculus AB or BC)</td>
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<th>OPTION IV</th>
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<th>Geometry/Honors Geometry</th>
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12
Grade 9 – 12 Options

**OPTION I**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course</th>
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<tbody>
<tr>
<td>9th</td>
<td>Algebra IA</td>
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<tr>
<td>10th</td>
<td>Algebra IB</td>
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<tr>
<td>11th</td>
<td>Geometry/Honors Geometry</td>
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**OPTION II**

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<th>Grade</th>
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<tbody>
<tr>
<td>9th</td>
<td>Algebra IA &amp; IB (2 periods daily)</td>
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<tr>
<td>10th</td>
<td>Geometry</td>
</tr>
<tr>
<td>11th</td>
<td>Algebraic Connections</td>
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**OPTION III**

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<th>Grade</th>
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<tbody>
<tr>
<td>9th</td>
<td>Algebra IA &amp; Math Intervention (2 periods daily)</td>
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<tr>
<td>10th</td>
<td>Algebra IB</td>
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<td>11th</td>
<td>Geometry</td>
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**OPTION V**

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<td>Algebra II with Trigonometry</td>
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**OPTION VI**

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<td>11th</td>
<td>Algebra II with Trigonometry</td>
</tr>
<tr>
<td>12th</td>
<td>Pre calculus</td>
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Note: It is required that students take at least one math course per academic year.

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**210005 Algebra I**

Fee: none  2 semesters, 1 credit  
Prerequisite: Math 8 or equivalent

The Algebra I course builds on foundational mathematics content learned by students in grades K – 8 by expanding mathematics understanding to provide students with a strong mathematics education. Content is designed to engage students in a variety of mathematical experiences that include the use of reasoning and problem-solving skills, which may be applied to life situations beyond the classroom setting. This course serves as the cornerstone for all high school mathematics courses; therefore, all subsequent mathematics courses require student mastery of the Algebra I content standards. Based on ACT's research for adequate college and/or career readiness, Algebra I is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and career without remediation. With the adoption of the Alabama College and Career Readiness Standards, Algebra I will require students to master the following Conceptual Categories (I), Domains (a), and Clusters (ii):

1. Number and Quantity
   a. The Real Number System
      i. Extend the properties of exponents to rational numbers
      ii. Use properties of rational and irrational numbers
   b. Quantities
      i. Reason quantitatively and use units to solve problems

2. Algebra
   a. Seeing Structure in Expressions
      i. Interpret the structure of expressions
      ii. Write expressions in equivalent forms to solve problems
   b. Arithmetic with Polynomials and Rational Expressions
      i. Perform arithmetic operations on polynomials
   c. Creating Equations
      i. Create equations that describe numbers or relationships
   d. Reasoning with Equations and Inequalities
      i. Understand solving equations as a process of reasoning and explain the reasoning
      ii. Solve equations and inequalities in one variable
      iii. Solve systems of equations
iv. Represent and solve equations and inequalities graphically

III. Functions

a. Interpreting Functions
   i. Understand the concept of a function and use of function notation
   ii. Interpret functions that arise in application in terms of context
   iii. Analyze functions using different representations

b. Building Functions
   i. Build a function that models a relationship between two quantities
   ii. Build new functions from existing functions

c. Linear, Quadratic, and Exponential Models
   i. Construct and compare linear, quadratic, and exponential models and solve problems
   ii. Interpret expressions for functions in terms of the situation they model

IV. Statistics and Probability

a. Interpreting Categorical and Quantitative Data
   i. Summarize, represent, and interpret data on a single count or measurement variable
   ii. Summarize, represent, and interpret data on two categorical and quantitative variables
   iii. Interpret linear models

   i. Understand independence and conditional probability and use them to interpret data

210008 Algebra IA

Fee: none 2 semesters, 1 credit
Prerequisite: Math 8 or equivalent

Algebra IA is designed for students to begin the study of algebra at a slower pace. The course will cover the first half of the topics normally covered in the traditional Algebra I course. Each student will then be required to take Algebra IB in order to fulfill the complete credit. Students who have passed Algebra I in grade 8 and accepted course credit may not take this course for credit.

210009 Algebra IB

Fee: none 2 semesters, 1 credit
Prerequisite: Algebra IA

Algebra IB is required of all students taking Algebra IA and will cover the second half of the topics covered in an Algebra I course. The topics covered include irrational numbers, quadratic equations, ratio and proportion, linear equations and functions, systems of equations, and statistics. Students who have passed Algebra I in grade 8 may not take this course for credit.

210010 Geometry

Fee: none 2 semesters, 1 credit
Prerequisite: Algebra I or Algebra IB

The Geometry course builds on Algebra I concepts and increases students' knowledge of shapes and their properties through geometry-based applications, many of which are observable in aspects of everyday life. This knowledge helps develop visual and spatial sense and strong reasoning skills. The Geometry course requires students to make conjectures and to use reasoning to validate or negate these conjectures. The use of proofs and constructions is a valuable tool that enhances reasoning skills and enables students to better understand more complex mathematical concepts. Technology should be used to enhance students' mathematical experience, not replace their reasoning abilities. Because of its importance, this Euclidean geometry course is required of all students receiving an Alabama High School Diploma. Based on ACT's research for adequate college and/or career readiness, Geometry is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

210011 Honors Geometry

Fee: none 2 semesters, 1 credit
Prerequisites: Algebra I, EXPLORE score of 17 or higher, and/or teacher/counselor recommendation

Honors Geometry is designed for the students who excelled in Algebra I. This course covers the same standards as Geometry with a more in-depth, rigorous, and challenging analysis of the major concepts with more emphasis on theory. The National Math and Science Initiative (NMSI) resources and teaching strategies and consistently used to engage students in Pre-AP curriculum. Logical thinking is developed through concentration on direct and indirect proofs.

210015 Algebraic Connections

Fee: none 2 semesters, 1 credit
Prerequisites: Algebra I and Geometry

This course is designed for students who wish to increase their mathematical knowledge and skills prior to enrollment in the Algebra II course or the Algebra II with Trigonometry
course. Algebraic Connections expands upon the concepts of Algebra I and Geometry with an emphasis on application-based problems. This course provides opportunities to incorporate the use of technology through its emphasis on applying functions to make predictions and to calculate outcomes.

210016 **Algebra II**  
Fee: none  
2 semesters, 1 credit  
Prerequisites: Algebra I and Geometry

Algebra II is a terminating course designed to extend students’ algebraic knowledge and skills beyond Algebra I. Students are encouraged to solve problems using a variety of methods that promote the development of improved communication skills and foster a deeper understanding of mathematics. To help students appreciate the power of algebra, application-based problems are incorporated throughout the course. The use of appropriate technology is also encouraged for numerical and graphical investigations. Based on ACT’s research for adequate college and/or career readiness, Algebra II is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

210017 **Algebra II with Trigonometry**  
Fee: none  
2 semesters, 1 credit  
Prerequisites: Algebra I, Geometry, and PLAN score of 19 or higher (for students in grade 11 or 12 only)

Algebra II with Trigonometry is a course designed to extend students’ knowledge of Algebra I with additional algebraic and trigonometric content. Mastery of the content standards for this course is necessary for student success in higher-level mathematics. The use of appropriate technology is encouraged for numerical and graphical investigations that enhance analytical comprehension. Based on ACT’s research for adequate college and/or career readiness, Algebra II with Trigonometry is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

210018 **Discrete Mathematics**  
Fee: None  
2 semesters, 1 credit  
Prerequisites: Algebra I, Geometry and Algebra II with Trigonometry

Note: Discrete Mathematics is a course designed for students who have successfully completed the Algebra II with Trigonometry course and who choose not to continue mathematics study in the Precalculus or Analytical Mathematics courses.

This course is designed for students who have successfully completed Algebra II with Trigonometry and who choose to continue mathematics study in Precalculus or Analytical Mathematics courses. This course may be offered as an elective for students who have completed the four mathematics requirements for graduation. This course also expands upon topics of matrices, combinational reasoning, counting techniques, algorithms, sequences, series, and their applications. Students are expected to work in both individual and group settings to apply problem-solving strategies and to incorporate technological tools that extend beyond traditional instructional practices.

210033 **Mathematics Intervention**  
Fee: none  
1 or 2 semesters, ½ or 1 credit  
Prerequisites: EXPLORE or PLAN scores, counselor/teacher recommendation, and/or other scores as deemed appropriate in 4-year plan

Note: Students in grades 9, 10, 11, or 12 may be enrolled in this course.

This course is an elective and does not fulfill one of the four mathematics credits required for graduation. It is provided for students who require remedial work in mathematics.

210034 **Analytical Mathematics**  
Fee: none  
2 semesters, 1 credit  
Prerequisites: Algebra I, Geometry, and Algebra II with Trigonometry

This course is designed for students who have successfully completed Algebra II with Trigonometry. It is considered to be parallel in rigor to Precalculus. This course provides a structured introduction to important areas of emphasis in most post-secondary studies that pursue a concentration in mathematics. Linear algebra, logic, vectors, and matrices are given more in-depth coverage than in previous courses. Application-based problem solving is an integral part of this course. To assist students with numerical and graphical analysis, the use of advanced technological tools is highly recommended. While this course may be taken either prior to or after Precalculus, it is recommended that students who are interested in post-secondary studies in engineering successfully complete the Precalculus course as well as an AP or IB Calculus course.

210020 **Precalculus**  
Fee: none  
2 semesters, 1 credit  
Prerequisite: Algebra II with Trigonometry

This course is considered to be a prerequisite for success in calculus and college mathematics. Algebraic, graphical, numerical, and verbal analyses are incorporated during investigations of the Precalculus content standards. Parametric equations, polar relations, vector operations, conic sections, and limits are introduced. Content for this course also includes an expanded study of polynomial and rational functions, trigonometric functions, and logarithmic and exponential functions. Application-based problem solving is an integral part of the course. Based on ACT’s research for adequate college and/or career readiness, Precalculus is a standardized level course of quality and intensity that aligns with the essentials that are necessary
to prepare students for college and/or career without remediation.

210025 Calculus AB, AP (Advanced Placement)
Fee: none 2 semesters, 1 credit
Prerequisite: Precalculus

This course is designed for those students who need a strong background in mathematics. Topics to be included in the first semester are algebraic functions, analytical geometry, series and sequences, and limits. The first semester will include a study of differential calculus with emphasis upon theory and techniques of differentiation curve tracing, maxima and minima problems, and related rate problems. The second semester includes a study of transcendental functions and integration. Students are introduced to the concept of integration and some applied problems using integration such as area between curves, volumes, and length of arcs. The Advanced Placement Course of Study, published by the College Board, will be used as the guide for this course. A graphing calculator is required for this course. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

210026 Calculus BC, AP (Advanced Placement)
Fee: none 2 semesters, 1 credit
Prerequisite: Precalculus

This AP course is a continuation of Calculus AB and includes additional material that would be covered in a second semester college calculus course. Additional topics include infinite series, parametric equations, polar equations, and vectors. A graphing calculator is required for this course. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

210027 Statistics, AP (Advanced Placement)
Fee: none 2 semesters, 1 credit
Prerequisite: Precalculus

This course is designed as an advanced mathematics course for students interested in pursuing a non-engineering curriculum in college. Topics to be included are: organizational techniques, required for mastery of descriptive statistics, measures of central tendency and dispersion, probability, both discrete and continuous probability distributions, confidence intervals, hypotheses tests, linear correlation and regression analysis, as well as other nonparametric methods of data comparison. Additional assignments, AP practices, and coaching sessions on weekends or evenings may also be required for preparation for the Advanced Placement Statistics exam. The goal of this course is success on the AP Statistics exam. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

210028 Mathematics Studies, SL, IB (grade 11)
Fee: None 2 semesters, 1 credit
Prerequisite: Algebra II with Trigonometry

This is an IB mathematics course at the Standard Level which will provide students with a comprehensive and sound mathematical background in preparation for future studies in AP Calculus and AP Statistics. Students will complete their study of precalculus and begin an introductory program in differential and integral calculus. Students will submit a portfolio of two assignments based on areas in the syllabus and involving the following activities: mathematical investigation and mathematical modeling. Students are required to write a research paper and may continue their mathematical research working on the IB Essays. This course requires a variety of IB assessments.

520008 Computer Science Principles
Fee: None 1 semester (blocked at TCTA), 1 credit
Prerequisites: Algebra I, Geometry, Algebra II with Trigonometry

NOTE: This course will only be offered at TCTA in 2014-2015 based on summer training with the UA for teachers who teach this course.

210036 Algebra with Finance
Fee: None 1 semester (blocked at TCTA), 1 credit
Prerequisites: Successful completion of Algebra I or IB, Geometry, and Algebraic Connections

NOTE: This course will only be offered at TCTA in conjunction with Finance Academy courses. This course is designed to be taught by mathematics teachers or career and technical teachers and may be used as the fourth math credit required for graduation, replacing Algebra I or Algebra II with Trigonometry.

This is a college and career preparatory course that integrates algebra, precalculus, probability and statistics, calculus and geometry to solve financial problems that occur in everyday life. Students are encouraged to use a variety of problemsolving skills and strategies in real-world contexts and to question outcomes using mathematical analysis and data to support their findings. Math concepts and skills are applied
through study and problem-solving activities in workforce situations in the following areas: banking, investing, employment and income taxes, automobile ownership and operation, mathematical operations, consumer credit, independent living, and retirement planning and budgeting.

700012 Algebraic Explorations I
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

Note: This course is not applicable for 2015-2016 and thereafter. Refer to course codes 700015-700019.

This course provides students with the opportunity to learn basic operations involving integers and numerical expressions and consumer skills such as calculating taxes and measurement of surface areas.

700013 Algebraic Explorations II
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

Note: This course is not applicable for 2016-2017 and thereafter. Refer to course codes 700015-700019.

This course provides students with the opportunity to learn basic algebraic concepts including graphing and analyzing linear equations and consumer skills such as budgets, loans, credit purchases, and measurements.

700015 Algebraic Concepts
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course provides students with prerequisite algebra skills identified in general education math courses. The course includes essential concepts to prepare students for Algebra Essentials A & B.

700016 Algebraic Essentials A
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course provides students with the foundational skills identified in the first half of general education Algebra I (or Algebra IA) course. The course includes essential concepts to equip students with the algebra necessary for employment and independent living.

700017 Algebraic Essentials B
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course provides students with foundational skills identified in the second half of the general education Algebra I (or Algebra IB) course. The course includes essential concepts to equip students with the algebra necessary for employment and independent living.

700018 Geometry Essentials A
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course provides students with the foundational skills identified in the general education Geometry course. The course includes essential concepts to equip students with the geometry skills necessary for employment and independent living.

700019 Geometry Essentials B
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course provides students with the foundational skills identified in the general education Geometry, Algebraic Connections, or Algebra I course. The course includes essential concepts to equip students with the geometry skills necessary for employment and independent living.

HISTORY, SOCIAL SCIENCE, & GOVERNMENT

230013 World History: 1500 to Present,
Grade 9
Fee: none 2 semesters, 1 credit
Prerequisite: None

This course encompasses a study of world history from 1500 to the present. It builds on the knowledge and skills that students have acquired from their previous studies in history. Students study and analyze global issues and the impact they may have on society, politics, the economy, and the environment. Emphasis is placed on geographic impact, the development of civic knowledge/responsibilities, and emerging economic systems. This course fulfills the graduation requirement for one credit of social studies.

230014 Honors World History: 1500 to Present, Grade 9
Fee: none 2 semesters, 1 credit
Prerequisite: Teacher recommendation

Students choosing to take this course at the honors level will cover more material in depth and at an accelerated rate. Students explore the same topics as the World History and Geography course, but the students will have a higher emphasis placed on critical thinking and examinations of historical texts. Students in this course will study world history from the Renaissance to the present and will think critically about the various forces that combined to shape the world today. Emphasis is placed on geographic impact, development of civic knowledge/responsibilities, and emerging economic
systems within a chronological context. This course fulfills the graduation requirement for one credit of social studies.

230016 United States History to 1877, Grade 10

Fee: none 2 semesters, 1 credit
Prerequisite: Successful completion of ninth grade course

This course is a survey of U.S. History from the Age of Exploration to 1877. Its primary emphasis is on the political, social, economic, and territorial development of this country and the emergence of the U.S. in a world leadership role. This course fulfills the graduation requirement for one credit of social studies. Based on ACT's research for adequate college and/or career readiness, U.S. History is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

230020 Honors United States History 1877 to Present, Grade 11

Fee: none 2 semesters, 1 credit
Prerequisites: Honors United States History to 1877, and/or teacher/counselor recommendation

This course provides advanced work in the chronological survey of major events and issues: industrialization, Progressivism, foreign policy, World War I, the Great Depression, World War II, post-war United States, and concepts related to Alabama history and geography.

230017 Honors United States History to 1877, Grade 10

Fee: none 2 semesters, 1 credit
Prerequisite: Honors World History: 1500 to Present or teacher recommendation

This course will cover the same historic development of American history from the discovery of our country to 1877. The honors course will go far beyond the regular course in scope and preparation time for the student. Several different classroom activities such as debate, journal articles, diaries, counter-factual assignments, and research papers will be utilized. The course will emphasize document-based questions where the student has to read and interpret graphs, tables, and charts much like the student will encounter on the Advanced Placement exam. This course is a survey of U.S. History from the Age of Exploration to 1877. Its primary emphasis is on the political, social, economic, and territorial development of this country and the emergence of the U.S. in a world leadership role. Students in this course will study topics in more depth and reflect on learning through advanced writing activities, debates, and journals articles. This course fulfills the graduation requirement for one credit of social studies.

230019 United States History from 1877, Grade 11

Fee: none 2 semesters, 1 credit
Prerequisite: United States History to 1877 or its equivalent

This course is a survey of United States History from 1877 to the present. Its principal emphasis is on the political, social, economic, and territorial development of this country and the emergence of the U.S. in a world leadership role. This course fulfills the graduation requirement for one credit of social studies. Based on ACT's research for adequate college and/or career readiness, U.S. History is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

230022 United States History, AP (Advanced Placement)

Fee: none 2 semesters, 1 credit
Prerequisite: Honors United States History to 1877

The Advanced Placement course is designed for the motivated student desiring an in-depth and challenging study of United States history. AP students should possess excellent study habits and analytical/writing skills. Learning activities include historical reenactments/simulations, debate, cooperative group work, research, and discussion. The program prepares students for college by making demands upon them equivalent to those of an introductory college course. The Advanced Placement Course of Study, published by the College Board, will be used as the guide for this course. College credit may be granted based on the examination score and the guidelines of individual colleges and universities. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

230024 History of the Americas I, IB (International Baccalaureate)

Fee: none 2 semesters, 1 credit
Prerequisite: Admission to the IB Programme (Offered at Central High School)

International Baccalaureate (IB) History of the Americas I provides students with an in-depth thematic study of the Americas. This course introduces students to history as a discipline and helps students understand the processes of historical inquiry. The course is a detailed study of the political, social, economic, and cultural history of the nations of the Americas with emphasis on the history of the United States up to the late 1800s. Students complete one or more written research projects on a historical subject of their choice. Research projects are presented to a group of IB peers for evaluation.
230026 History of The Americas II, IB (International Baccalaureate)
Fee: none 2 semesters, 1 credit
Prerequisites: AP U.S. History and admission to the IB Programme
(Offered at Central High School)

History of The Americas II provides students with an in-depth thematic study of the Americas. The course is a detailed study of the political, social, economic, and cultural history of the nations of the Americas, with emphasis on the history of the United States in the 20th century. Students complete one or more written research projects on a historical subject of their choice. Research projects are presented to a group of IB peers for evaluation.

230029 European History, AP (Advanced Placement)
Fee: none 2 semesters, 1 credit
Prerequisite: None

The study of European History since 1450 introduces students to cultural, economic, political, and social development that played a fundamental role in shaping the world in which they live. Empowered with this knowledge, students will gain the context for understanding the development of contemporary institutions, the role of continuity and change in present-day society and politics, and the evolution of current forms of artistic expression and intellectual discourse. In addition to providing a basic narrative of events and movements, the goals of the AP program in European History are to develop (a) an understanding of some of the principal themes in modern European History, (b) an ability to analyze historical evidence and historical interpretation, and (c) an ability to express historical understanding in writing. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

230041 United States Government
Fee: none 1 semester, ½ credit
Prerequisite: US History 1877 to Present or its equivalent

This course serves as the capstone of the K-12 curriculum. Students in this course gain the knowledge and skills necessary for civic responsibility. In American Government students draw on the knowledge and skills from their previous study of the United States, world history, and geography as background information. The course focuses on the origins and functions of government as well as the intellectual influences in the development of representative democracy in America. Through a detailed study of the United States Constitution, students become knowledgeable of the structure and workings of government at all levels in the state and nation.

230051 Economics
Fee: none 1 semester, ½ credit
Prerequisite: US History 1877 to Present or its equivalent

Economics provides students with detailed knowledge in the workings of modern-day economic systems, in particular the American capitalist system. Students acquire information about basic economic concepts and skills in the interpretation of graphic economic data. Students apply information and skills to the analysis of issues and problems in contemporary economic systems. The study of economics includes the use and interpretation of maps, charts, graphs, tables, and other expressions of statistical data.

230042 United States Government, Honors
Fee: none 1 semester, ½ credit
Prerequisites: Honors United States History from 1877 to the Present, and/or teacher/counselor recommendation

U.S. Government, Honors will go far beyond the regular course in scope and preparation time for the student. The U.S. Government course serves as the capstone of the K-12 curriculum. Students in this course gain the knowledge and skills necessary for civic responsibility. In American Government students draw on the knowledge and skills from their previous study of the United States, world history, and geography as background information. The course focuses on the origins and functions of government as well as the intellectual influences in the development of representative democracy in America. Through a detailed study of the United States Constitution, students become knowledgeable of the structure and workings of government at all levels in the state and nation.

230052 Economics, Honors
Fee: none 1 semester, ½ credit
Prerequisites: Honors United States History from 1877 and/or teacher/counselor recommendation

Honors Economics will go far beyond the regular course in scope and preparation time for the student. Economics provides students with detailed knowledge in the workings of modern-day economic systems, in particular the American capitalist system. Students acquire information about basic economic concepts and skills in the interpretation of a graphic economic date. Students apply information and skills to the analysis of issues and problems in contemporary economic systems. The study of economics includes the use and interpretation of maps, charts, graphs, tables, and other expressions of statistical data.
230047 United States Government and Politics, AP (Advanced Placement)  
Fee: none 1 semester, ½ credit  
Prerequisites: Honors U. S. History to 1877 and U.S. History from 1877

This college-level survey course is designed to provide students with the skills and factual knowledge to deal with material and evidence concerning government and politics. This course follows the curriculum established by the College Board Advanced Placement (AP) Program for U.S. Government and Politics.

230054 Macroeconomics, AP (Advanced Placement)  
Fee: none 1 semester, ½ credit  
Prerequisites: Honors U. S. History to 1877 and U.S. History from 1877

The focus of this macroeconomics course is the U.S. capitalist system. The content will help students develop critical thinking skills through the understanding, application, and analysis of fundamental economic concepts. Students will weigh the merits of different economic theories and understand the divergent policies that ensue. This course will illustrate the derivation of major statistical measures and how to use models such as graphs to predict the outcome of domestic and foreign policy decisions. Students will be taught the explanation of Keynesian Economics as well as the use of monetary and fiscal policy. Completion of the course and a score of three or better on the AP exam may earn college credit. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

230055 Microeconomics, AP (Advanced Placement)  
Fee: none 1 semester, ½ credit  
Prerequisite: Honors United States History from 1877 to the Present

The focus of this microeconomics course is the study of the economic behavior of individuals and firms within individual markets. These markets include: perfect competition, monopoly, and imperfect competition. The content will help students develop critical thinking skills through understanding the application and analysis of fundamental economic concepts. Students will weigh the merits of different economic theories and understand the divergent policies that ensue. The microeconomics student will also understand the tools and methods economists use for problem solving as well as develop a basic understanding of markets and market failures. The course will also include an understanding of factor markets including labor and capital. Completion of the course and a score of three on the AP exam may earn college credit. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

230071 Psychology  
Fee: none 1 semester, ½ credit  
Prerequisite: None

The objective of psychology as a social science elective course is to understand, explain, and predict the behavior of individuals. This course employs basic theories, concepts, principles, and research findings to analyze human behavior with emphasis on individual differences, motivation, personality, learning perception, and social behavior.

230072 Psychology, AP (Advanced Placement)  
Fee: none 1 semester, ½ credit  
Prerequisite: None

In this course, students will demonstrate an understanding of themselves and of other human beings, appreciate psychology as a discipline and as relevant to the student's own life, be introduced to psychological inquiry with emphasis on scientific method, and to be aware of and sensitive to people with mental illness. Key subject areas to be studied include physiological psychology, social psychology, developmental psychology, cognition and learning, personality, and psychological disorders and treatment. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

230073 Psychology, SL, IB (International Baccalaureate)  
Fee: none 2 semesters, 1 credit  
Prerequisite: Admission to the IB Programme (Offered at Central High School)

In this course students demonstrate an understanding of themselves and of other human beings, appreciate psychology as a discipline and as relevant to the student's own life, are introduced to psychological inquiry with emphasis on scientific method, and become aware of and sensitive to people with mental illness. Key subject areas to be studied include physiological psychology, social psychology, developmental psychology, cognition and learning, personality, and psychological disorders and treatment.

230074 Psychology, HL, IB (International Baccalaureate)  
Fee: None 2 semesters, 1 credit  
Prerequisites: Admission to the IB Programme and IB SL Psychology (Offered at Central High School)

In this course students will demonstrate an understanding of themselves and of other human beings and appreciate psychology as a discipline and as relevant to the student's own life. Students will be introduced to psychological inquiry, with emphasis on scientific method, and become aware of and sensitive to people with mental illness. Key
subject areas to be studied include social-cultural psychology, biological psychology, cognitive psychology, and sports psychology.

230081 Sociology

Fee: none 1 semester, ½ credit
Prerequisite: None

This elective course provides a foundation that will enable students to understand people and their interaction with the world in which they live. Self-awareness is a study of personality, intelligence, learning theories, and techniques. It examines problems, attitudes, heredity-environmental interaction, and provides for study of the many aspects of adjustment including those relating to family relations and relations with authority figures. Outside reading is required.

230095 Theory of Knowledge, IB
(International Baccalaureate)

Fee: none 2 semesters, 1 credit
Prerequisite: Admission to the IB Programme
(Offered at Central High School)

This interdisciplinary course, a foundation of the IB curriculum model, is designed to provide coherence by exploring the nature of knowledge across all disciplines, encouraging an appreciation of other cultural perspectives. IB Theory of Knowledge will provide students with the opportunity to make connections between subjects such as knowledge and truth, language, logic, mathematics, science, social science, history, ethics, political judgment, and aesthetics. Students will use both oral and written communication extensively to express and explore their ideas and feelings about their knowledge. Students are required to write a formal paper of 1200-1600 words and to produce and present a project related to the course.

230212 Other Social Studies Elective

Fee: none 2 semesters, 1 credit

This course is designed to provide students with the opportunity to discover how the military has shaped the history of mankind. The class will begin with earliest battles in ancient Mesopotamia to today's war in Iraq. The course will allow students to explore how conflicts have had the power to shape and change the world.

700031 LS I: World History, Grade 9

Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course is a study of world history from 1500 to the present. Students are able to apply and utilize their knowledge to develop informed opinions about issues such as the quest for peace, human rights, trade, global ecology, and the impact each has on everyday life situations.

700032 LS II: U.S. History to 1877, Grade 10

Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course follows a chronological study for major events, issues, movements, leaders, and groups of people of the United States through 1877 from a national and Alabama perspective.

700033 LS III: U.S. History from 1877,
Grade 11

Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course begins with the post-Reconstruction United States and its shift into a more industrialized society and continues through the twentieth century to the present.

700034 LS IV: Economics, Grade 12

Fee: none 1 semester, ½ credit
Prerequisite: IEP team decision

This one-semester course focuses on the functions and institutions of modern-day economic systems and theory. Students gain skills that will enable them to anticipate changes in economic conditions and how to adjust to the changes to improve their lives and their communities.

700035 LS IV: U.S. Government, Grade 12

Fee: none 1 semester, ½ credit
Prerequisite: IEP team decision

This one-semester course focuses on the origins, structure, and functions of government at all levels. It also includes a detailed study of the Constitution of the United States and its provisions.

**SCIENCE**

**Example Course Sequences**

<table>
<thead>
<tr>
<th>OPTION I</th>
<th>(Math average of &quot;C&quot; or below)</th>
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<tbody>
<tr>
<td>9th</td>
<td>Biology</td>
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<tr>
<td>10th</td>
<td>Physical Science</td>
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<tr>
<td>11th</td>
<td>Based on 4-year plan, select from the following options:</td>
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<tr>
<td></td>
<td>Chemistry</td>
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<td></td>
<td>Earth and Space Science</td>
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<td></td>
<td>Environmental Science</td>
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<td>Zoology</td>
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<td>Forensic Science</td>
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<td></td>
<td>Physics</td>
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<td></td>
<td>Human Anatomy and Physiology</td>
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<tr>
<td>12th</td>
<td>Based on 4-year plan, select from the following options:</td>
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<td></td>
<td>Chemistry</td>
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21
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<tr>
<th>OPTION II</th>
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<tbody>
<tr>
<td><strong>Math average of &quot;B&quot; or &quot;C&quot;</strong></td>
</tr>
<tr>
<td><strong>9th</strong> Biology</td>
</tr>
<tr>
<td><strong>10th</strong> Physical Science</td>
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</tbody>
</table>
| **11th** Based on 4-year plan, select from the following options:  
  - Chemistry  
  - Honors Chemistry  
  - Human Anatomy and Physiology (see course descriptions for course prerequisites) |
| **12th** Based on 4-year plan, select from the following options:  
  - Human Anatomy and Physiology  
  - Physics  
  - AP Biology |

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<tr>
<th>OPTION III</th>
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<tr>
<td><strong>Math average of “A” or “B”</strong></td>
</tr>
<tr>
<td><strong>9th</strong> Biology/Honors Biology</td>
</tr>
</tbody>
</table>
| **10th** Based on 4-year plan, select from the following options:  
  - Honors Chemistry  
  - Chemistry |
| **11th** Based on 4-year plan, select from the following options:  
  - Physics  
  - Human Anatomy and Physiology  
  - AP Biology  
  - AP Chemistry (see course descriptions for course prerequisites) |
| **12th** Based on 4-year plan, select from the following options:  
  - Human Anatomy and Physiology  
  - Physics  
  - AP Biology  
  - AP Chemistry  
  - AP Physics 1 & 2: Algebra-Based |

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<th>OPTION IV</th>
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<tbody>
<tr>
<td><strong>Math average of “A” or “B”</strong></td>
</tr>
<tr>
<td><strong>9th</strong> Biology/Honors Biology</td>
</tr>
<tr>
<td><strong>10th</strong> Chemistry/Honors Chemistry and Human Anatomy and Physiology</td>
</tr>
</tbody>
</table>
| **11th** Based on 4-year plan, select from the following options:  
  - Physics  
  - AP Biology or Chemistry  
  - AP Physics 1 & 2: Algebra-Based |
| **12th** Based on 4-year plan, select from the following options: |

- Earth and Space Science  
- Environmental Science  
- Physics  
- Human Anatomy and Physiology  
- Zoology  
- Forensic Science  
- Physics  
- AP Biology, Chemistry, or Physics 1 & 2: Algebra-Based  
- Zoology

### 220011 Biology

**Fee:** none  
**2 semesters, 1 credit**  
**Prerequisite:** None

This course covers the Biology Core content standards: scientific process and application skills, cell processes, cell theory, photosynthesis and cellular respiration, genetics, classification, plants, animals, ecology, and biogeochemical cycles. This course fulfills the biology graduation requirement. Based on ACT's research for adequate college and/or career readiness, Biology is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

### 220012 Honors Biology

**Fee:** none  
**2 semesters, 1 credit**  
**Prerequisites:** EXPLORE score of 20 or higher, and/or teacher/counselor recommendation

Due to the pace of this course, a student should have demonstrated academic excellence in previous science and math courses.

This course is intended for students who are interested in an accelerated program. Honors Biology will incorporate the National Math and Science Initiative (NMSI) Pre-AP resources, materials, and strategies to prepare students who may consider taking AP Biology or are interested in a science-related career after high school. This course covers advanced work above the Biology Core content standards: scientific process and application skills, cell processes, cell theory, photosynthesis and cellular respiration, genetics, classification, plants, animals, ecology, and biogeochemical cycles. This course fulfills the biology graduation requirement. Topics are studied in a way that better prepares students for success in Advanced Placement Biology. Students are required to analyze and synthesize concepts and draw inferences from new information. Laboratory work is designed to emphasize investigation rather than illustration and greater emphasis is placed on independent thinking.

### 220014 AP (Advanced Placement) Biology

**Fee:** none  
**2 semesters, 2 credits, 2 periods (1 for class and 1 for lab)**  
**Prerequisites:** Honors Biology and Chemistry

This course is designed for students who will take Biology to satisfy the core curriculum of most colleges as freshman and/or students who wish to take tests for advanced standing in college Biology. Students wishing to take the AP test given in May must complete both terms of the course; the test includes information from both terms.
Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

220015 Biology, SL, IB (International Baccalaureate) Grade 11
Fee: none 2 semesters, 1 credit
Prerequisites: Honors Biology and Chemistry
(Offered at Central High School)

This course is taught with an emphasis on biology content including an application of scientific methods by which students develop an ability to analyze, evaluate, and synthesize scientific information.

220016 Biology, HL, IB (International Baccalaureate) Grade 12
Fee: none 2 semesters, 1 credit
Prerequisites: Honors Biology and Chemistry
(Offered at Central High School)

This course is taught with an emphasis on biology content including an application of scientific methods by which students develop an ability to analyze, evaluate, and synthesize scientific information.

IB students must be admitted to the IB Programme and must take both IB Biology 11 and IB Biology 12 in order to satisfy IB diploma requirements. The IB Course of Study will be used as guides for the course.

220023 Zoology
Fee: none 2 semesters, 1 credit
Prerequisites: Biology and either Physical Science or Chemistry

Zoology is an elective course for the study of animals. A survey of the animal kingdom, including identification, distribution, structure, and function of each animal group, are topics included in this course. Major emphasis will be placed upon the study of vertebrates.

220026 Human Anatomy and Physiology
Fee: none 2 semesters, 1 credit
Prerequisites: Biology or Honors Biology, and Chemistry
(can be taken simultaneously with this course)

This elective course focuses on the fundamental structure and functions of the human body. A focus is placed on the scientific process and application skills; anatomical terminology; structure and function of cells, tissues, and body systems; biochemistry; and system regulation and integration. This course content helps prepare students for the biomedical/health science academy, nursing, and other health-related careers.

220027 Honors Human Anatomy and Physiology
Fee: none 2 semesters, 1 credit
Prerequisites: Biology or Honors Biology, and Chemistry
(can be taken simultaneously with this course)

This elective honors course includes the study of the structure and function of the human body. A focus is placed on the scientific process and application skills; anatomical terminology; structure and function of cells, tissues, and body systems; biochemistry; and system regulation and integration. Interaction between systems and medical applications will be stressed. The hands-on investigative approach is used to allow the students to be actively engaged in learning. This honors course will incorporate the National Math and Science Initiative (NMSI) Pre-AP resources, materials, and strategies to prepare students who may consider taking an AP science course or may be interested in a science-related career after high school.

220029 Environmental Science
Fee: none 2 semesters, 1 credit
Prerequisites: Biology and either Physical Science or Chemistry

Environmental Science is an integrated elective science course that uses information from previous science courses to identify and provide solutions to problems. It is designed to focus on the study of ecological principles and their application to field studies and human interaction. Students will learn how certain current trends such as population growth, water pollution, and depletion of natural resources affect the ability of the human population to sustain itself. An environmental approach will focus on the four major themes of energy, systems and interactions, structure and function, and stability and change. Fieldwork is an integral and required component of this course.

220034 Forensic Science
Fee: none 2 semesters, 1 credit
Prerequisites: Biology and either Physical Science or Chemistry

This elective course focuses on the analysis of evidence collection, the decomposition process, crime scenes, skeletal remains, toxicology, and document validity. Case studies and crime scenarios help students understand the implications and complicated issues that are emerging as the science of forensics continues to develop.

220045 Life Science Elective
Fee: none 1 or 2 semesters, ½ or 1 credit
Prerequisites: None

This elective course provides students with specialized topics, processes, skills, applications, principles, and experimentation in life science. This course does not fulfill the graduation requirement for Biology, "A Physical Science," or the two additional science requirements.
220051 Physical Science
Fee: none 2 semesters, 1 credit
Prerequisite: None

Physical Science is a survey course of the concepts taught in chemistry and physics. Topics of study include scientific methods, properties of matter, the physical environment, and the forces of motion. It is recommended for students going through Algebra IA and IB to help better prepare them for Chemistry. It fulfills the graduation requirement for one credit of Physical Science for the high school diploma.

220054 Physical Science Elective
Fee: none 1 or 2 semesters, ½ or 1 credit
Prerequisite: None

This general elective course provides students with the opportunity to study specialized science topics, processes, skills, applications, principles, and experimentation. Students can take this course to prepare for the BEST Robotics competition in the fall, the University of Alabama spring Robotics competition, or additional robotics competitions.

Note: This elective course does NOT fulfill the graduation requirement for Biology, "A Physical Science," or the two additional science requirements for Alabama High School Diploma requirements.

220061 Chemistry
Fee: none 2 semesters, 1 credit
Prerequisite: Algebra I or equivalent

This course covers the chemistry core associated with basic chemistry concepts of the structure, forms, changes, availability, and uses of matter and energy. It also includes the study of the types of reactions, thermochemistry, chemical kinetics, chemicals equilibrium, acids/bases, solution equilibrium, electro-chemistry, and organic chemistry. Students are required to analyze and synthesize concepts and draw inferences from new information. Laboratory work is designed to emphasize investigation and independent thinking. This course fulfills the Physical Science requirement for the high school diploma. Based on ACT's research for adequate college and/or career readiness, Chemistry is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

220062 Honors Chemistry
Fee: none 2 semesters, 1 credit
Prerequisites: EXPLORE score of 20 or higher or PLAN score of 21 or higher, and/or or teacher/counselor recommendation

Honors Chemistry is designed for students who are highly motivated and interested in seeking a career in a science-related field. This course moves at a much faster pace than the regular chemistry class and, as a result, a greater range and depth of material will be covered. This honors course will incorporate the National Math and Science Initiative (NMSI) Pre-AP resources, materials, and strategies to prepare students who may consider taking an AP science course or may be interested in a science-related career after high school.

220064 Advanced Placement (AP) Chemistry
Fee: none 2 semesters, 2 credits, 2 periods (1 for class and 1 for lab)
Prerequisites: PLAN score of 21 or higher, and/or teacher/counselor recommendation

Advanced Placement (AP) Chemistry is a laboratory-intensive course covering most topics of a first year college chemistry course. These topics include greater in-depth study of atomic theory, stoichiometry, kinetics, equilibrium, thermodynamics, electrochemistry, organic chemistry and nuclear chemistry. The Advanced Placement Course of Study published by the College Board will be used as the guide for this course. Students who wish to earn advanced placement college credit must score well on the AP Chemistry examination. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

220065 Chemistry, HL, IB (International Baccalaureate) Grade 11
Fee: none 2 semesters, 1 credit
Prerequisite: Chemistry
(Offered at Central High School)

IB Chemistry is a laboratory-intensive course covering most topics of a first year college chemistry course. These topics include greater in-depth study of atomic theory, stoichiometry, kinetics, equilibrium, thermodynamics, electrochemistry, organic chemistry, and nuclear chemistry. To earn credit for IB Chemistry, students must be enrolled in the IB Programme.

220066 Chemistry, SL, IB (International Baccalaureate), Grade 12
Fee: none 2 semesters, 1 credit
Prerequisite: Chemistry
(Offered at Central High School)

IB Chemistry is a laboratory-intensive course covering most topics of a first year college chemistry course. These topics include greater in-depth study of atomic theory, stoichiometry, kinetics, equilibrium, thermodynamics, electrochemistry, organic chemistry, and nuclear chemistry. To earn credit for IB Chemistry, students must be enrolled in the IB Programme.
220071 Physics
Fee: none 2 semesters, 1 credit
Prerequisites: Algebra II with Trigonometry, Chemistry, and/or teacher recommendation

Physics is a science course concerned with the physical world and how it functions. It is a quantitative course and is heavily dependent on students' mathematical abilities. Students perform laboratory experiments individually or in groups. The topics covered in Physics include the universe, matter, energy, force, and motion. Students considering a career in the fields of medicine, engineering, math, or science should take this course. Based on ACT's research for adequate college and/or career readiness, Physics is a standardized level course of quality and intensity that aligns with the essentials that are necessary to prepare students for college and/or career without remediation.

220057 AP Physics 1: Algebra-Based
Fee: none 2 semesters, 1 credit, 2 periods
(needed to complete both AP Physics 1 and 2 in 1 school year)
Prerequisites: Geometry; Algebra II w Trigonometry or an equivalent course (either taken concurrently or successfully completed)

NOTE: Each course (AP Physics 1 and 2) is considered a year-long course. If your school block-schedules science lab courses, students can take both of these courses in one year, but they will have to take 2 AP Physics exams.

This college-level, algebra-based, introductory physics course will replace the former AP Physics B course, along with AP Physics 2: Algebra-Based beginning with the 2014-2015 school year. This course follows the curriculum established by the College Board Advanced Placement (AP) Program: provides a foundation for future course work in physics; explores topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; introductory, simple circuits; and facilitates inquiry-based learning designed to develop scientific critical thinking and reasoning skills.

220058 AP Physics 2: Algebra-Based
Fee: none 2 semesters, 1 credit, 2 periods
(needed to complete both AP Physics 1 and 2 in 1 school year)
Prerequisites: Algebra II w Trigonometry, AP Physics 1 or a comparable introductory course in physics (both prerequisite courses either taken concurrently or successfully completed)

Note: Each course is considered a year-long course. If your school block-schedules science lab courses, students can take both of these courses in one year, but they will have to take 2 AP Physics exams.

This college-level, algebra-based, introductory physics course will replace the former AP Physics B course, along with AP Physics 1: Algebra-Based beginning with the 2014-2015 school year. This course follows the curriculum established by the College Board Advanced Placement (AP) Program: provides a foundation for future course work in physics; explores topics such as fluid statics and dynamics; thermodynamics with kinetic theory; PV diagrams and probability; electrostatics; electrical circuits with capacitors; magnetic fields; electromagnetism; physical and geometric optics; quantum, atomic and nuclear physics; and facilitates inquiry-based learning designed to develop scientific critical thinking and reasoning skills.

220081 Earth and Space Science
Fee: none 2 semesters, 1 credit
Prerequisites: Biology and either Chemistry or Physical Science

This course focuses on the earth's surface, structure, and atmosphere including a study of the earth's relationship to the moon and surrounding universe. The course introduces students to an advanced study of Earth and perspectives of the universe from Earth as well as future challenges and technologies required for space exploration.

220090 Science Intervention
Fee: none 1 or 2 semesters, ½ or 1 credit
Prerequisites: EXPLORE or PLAN scores, counselor/teacher recommendation, and/or other scores as deemed appropriate in 4-year plan

Note: Students in grades 9, 10, 11, or 12 may be enrolled in this course.

This course provides students with the opportunity to do remedial work in scientific processes, knowledge, and application and scientific principles, observations, and experiments in life, physical, and earth sciences.

700021 Life Skills Science I: Physical Science
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course is designed to provide students with a practical knowledge of Physical Science including scientific process and application skills; the periodic table; solutions; bonding; chemical formulas; physical and chemical changes; gravitational, electromagnetic, and nuclear forces; motion; energy; energy transformation; electricity and magnetism science; and metric units.

700022 Life Skills Science II: Biology
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course is designed to provide students with a practical knowledge of biology including scientific process and application skills, cell processes, cell theory, photosynthesis and cellular respiration, genetics,
classification, plants, animals, ecology, and biochemical cycles.

**70023 Life Skills Science III: Earth and Space**
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course is designed to provide students with practical knowledge of Environmental Science including scientific process and application skills, natural and human impact on the environment, carrying capacity, renewable and non-renewable energy resources, properties and importance of water, land use practices, and composition and erosion of soil.

**70026 Life Skills Science IV: Human Anatomy and Physiology**
Fee: none 2 semesters, 1 credit
Prerequisite: IEP team decision

This course is designed to provide students with practical knowledge of Human Anatomy and Physiology including scientific process and application skills; anatomical terminology; structure and function of cells, tissue, and body systems; biochemistry; and system regulation and integration.

### Career & Technical Academies

Tuscaloosa Career & Technology Academies offer career-themed programs that link the core academics with careers projected to be in demand for the next ten to twenty years. Each Academy provides a rigorous and enriching curriculum, actively involving employers and higher education institutions, in readiness students for both college and careers, while also providing students with a purpose for continued learning.

Each academy provides hands-on activities that require students to problem-solve by making use of the core academics, in particular mathematics, science, and English, while developing skills currently noted by business and industry as lacking, including working in teams, problem solving, communication, and work ethic.

Students completing an Academy will earn work-ready credentials that will significantly enhance their portfolio, while also providing an enriched foundation to facilitate advancement in post-secondary studies. Students who maintain a "B" or better average in their chosen academy will be eligible for articulated post-secondary credit and/or preferential points for highly competitive programs.

Career technical student organizations are integral, co-curricular components of each career and technical course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth. Upon graduation, students are prepared for post-secondary education, apprenticeship programs, and employment as well as individual, family, and community success.

Three courses in a coherent sequence are required for a Career/Technical Endorsement for rising juniors and seniors.

### Academy Electives

The following courses are available to all students but only at TCTA.

**290001 Driver and Traffic Safety Education**
Fee: $50.00 1 semester, ½ credit
Prerequisite: Age 15 and have a Driver's Permit
Note: This course may or may not be offered based on availability of a vehicle, as well as costs to cover the entire program.

This elective course provides safe driving theory, in-class study, driving hazards, boating safety, behind the wheel experiences, and safety practices.

**40025 Career Preparedness**
Fee: none 1 semester, 1 credit

NOTE: The blocked course option is only at TCTA.

This course is required for graduation and is taught in grades 9 – 12 (should be taken in grade 9). Through this course, students will gain content knowledge and skills to prepare them for college and career readiness. It incorporates three components: career development and academic planning, computer skill application, and financial literacy knowledge. This course is also designed to meet the required 20-hour online experience. Upcoming sophomores, juniors, and seniors who have not taken a course to fulfill both their 20-hour online experience requirement and one-half credit computer applications requirement will take this course in place of Business Technology Applications (BTA). BTA will no longer be offered at the high school sites due to the new diploma option and the new state course, Career Preparedness. A student may, however, fulfill both the 20-hour online
experience and one-half credit computer applications through another course (ACCESS course, etc.).

**400031 Cooperative Education Seminar**

Fee: $25 1 semester, 1 credit

(at TCTA)

Prerequisite: Application and selection

This course is a required component of the Cooperative Education work-based experience. Students enrolled in Cooperative Education programs are required to participate in the seminar one class period block each week. Students must work 270 clock hours in a work-based learning environment to earn one credit. This course will count as one elective credit for any Career/Technical Pathway.

**420024 Fish and Wildlife Management**

Fee: $25 1 semester, 1 credit

Prerequisite: none

This course provides students with the opportunity to gain knowledge regarding the management of natural resources. Topics included in the course are career opportunities, outdoor safety, history, issues, classification, fish and wildlife ecology, fish and wildlife management, endangered species, fish and wildlife pest management, and outdoor recreation. Students enrolled in this class may earn certification in the Alabama Hunter's Education course.

**802200ab Workforce Academy Readiness**

Fee: $25 1 semester, 1 credit

Prerequisites: Grades 11 or 12

Workforce Academy Readiness is a one-credit course that provides students with higher-level academic and occupational skills that are transferable across jobs and occupational areas. Emphasis is placed on preparing students to apply for the MUSD apprenticeship programs and will include academic foundations for careers; applied technology; career development and employment; entrepreneurship and business economics; social and ethical responsibility, leadership and teamwork; safety and health; and technical knowledge and skills. Students build on prior knowledge, strengths, interests, and needs that enhance preparation for future employment and continuing education and training.

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**Animation, Media Design, & Technology Academy**

The Animation, Media Design, & Technology Academy provides students with unique opportunities to develop fundamental skills necessary for careers as animators, broadcast journalists, or filmmakers. Coursework introduces students to emerging applications in film direction and production, visual art and 3D animation, and broadcast media and technology. Training within the Animation, Media Design, & Technology Academy strives to mirror the professional working environments found in animation, television, and film studios. Upon completion of the coursework within these various pathways, students will have learned and can apply this knowledge to further study at 2- or 4-year colleges/universities, or obtain entry-level positions in the animation, broadcast media, or film industries.

### Animation Program

<table>
<thead>
<tr>
<th>Grade, Pathway</th>
<th>Course #</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>440041</td>
<td>Introduction to Animation</td>
</tr>
<tr>
<td></td>
<td>440042</td>
<td>Animation Layout</td>
</tr>
<tr>
<td>10th Grade</td>
<td>440044</td>
<td>Storyboarding</td>
</tr>
<tr>
<td></td>
<td>440043</td>
<td>Animation Character Development and Design</td>
</tr>
<tr>
<td>11th Grade</td>
<td>440045</td>
<td>Character Animation</td>
</tr>
<tr>
<td></td>
<td>440046</td>
<td>Animated Filmmaking</td>
</tr>
<tr>
<td>12th Grade</td>
<td>440047</td>
<td>Advanced Animation Portfolio</td>
</tr>
<tr>
<td></td>
<td>400054</td>
<td>Senior Career Pathway Project</td>
</tr>
</tbody>
</table>

**440041 Introduction to Animation and Visual Communication**

Fee: $25 1 semester, 1 credit

Prerequisites: BTA or equivalent/teacher recommendation

This course introduces students to the animation industry. Emphasis is placed on safety in a laboratory and studio environment. Students apply the principles of animation to visually communicate thoughts, feelings, and ideas. Topics of study include animation history, criticism, production, and materials and media utilized in the field. Successful completion of this course prepares students for subsequent courses in animation.

**440042 Animation Layout**

Fee: $25 1 semester, 1 credit

Prerequisites: Introduction to Animation and Visual Communication; Teacher Recommendation

This course provides students with the opportunity to explore illustration as related to settings, locations, and environments for animated film. Students utilize design principles to create believable environments. Topics include life, landscape, and architectural drawings. Successful completion of this course prepares students for the Storyboarding course and for entry-level careers in animation layout. Introduction to Animation and Visual Communication or a satisfactory portfolio review by the instructor is the prerequisite for this course.
440043 Animation Character Development and Design
Fee: $25 1 semester, 1 credit
Prerequisites: Animation Layout; Teacher Recommendation

This course provides students with the opportunity to develop and design animated characters. Emphasis is placed on anatomy, film archetypes and stereotypes, figure drawing, and costume design. Skills gained in this course prepare students for the Character Animation course, post-secondary education, and entry-level careers in character design. Introduction to Animation and Visual Communication, Animation Layout, or a satisfactory portfolio review by the instructor are prerequisites for this course.

440044 Storyboarding
Fee: $25 1 semester, 1 credit
Prerequisites: Animation Character Development and Design; Teacher Recommendation

This course provides students with the opportunity to visually illustrate and communicate ideas, themes, locations, and emotions. Storyboards are created through a variety of electronic, traditional, and digital media. Successful completion of this course prepares students for the Animated Filmmaking course and entry-level careers in storyboarding. Introduction to Animation and Visual Communication, Animation Layout, or a satisfactory portfolio review by the instructor are prerequisites for this course.

440045 Character Animation
Fee: $25 1 semester, 1 credit
Prerequisites: Storyboarding; Teacher Recommendation

This course provides students with the opportunity to utilize the principles of animation to create animated stories with characters appearing to be self-motivated and possessing individual thought processes. Instruction allows students to focus on figure drawing, pantomime and acting, and advanced mechanics in animation. Skills gained in this course prepare students for the Animated Filmmaking course, post-secondary education, and entry-level positions in animation. Introduction to Animation and Visual Communication, Animation Layout, Storyboarding, or a satisfactory portfolio review by the instructor are prerequisites for this course.

440046 Animated Filmmaking
Fee: $25 1 semester, 1 credit
Prerequisites: Character Animation; Teacher Recommendation

This course provides students with the opportunity to produce entertaining animated films utilizing a variety of techniques. Topics include visual development, storyboarding preproduction, animation production, and animation technology. Successful completion of this course prepares students for Advanced Animation Portfolio, post-secondary education, and entry-level careers in animated filmmaking. Introduction to Animation and Visual Communication, Animation Layout, Storyboarding, Character Animation, or a satisfactory portfolio review by the instructor are prerequisites for this course.

440047 Advanced Animation Portfolio
Fee: $25 1 semester, 1 credit
Prerequisites: Animated Filmmaking; Teacher Recommendation

This course provides students with the opportunity to produce portfolio-quality animation utilizing a variety of techniques. Students critique, judge, and revise previous animation that will be assembled into a final portfolio. Instruction allows students to focus on safety, studio projects, portfolio organization, and employment skills. Students are encouraged to participate in a variety of local, state, and national contests as well as to present their projects to industry professional and post-secondary educators. Successful completion of this course prepares students for post-secondary education and entry-level positions in animation or related fields. Introduction to Animation and Visual Communication, Animation Layout, Storyboarding, Character Animation, Animated Filmmaking, or a satisfactory portfolio review by the instructor are prerequisites for this course.

440054 Senior Career Pathway Project
Fee: $25 1 semester, 1 credit
Prerequisites: Successful completion of 3 Advanced Animation Courses; Instructor Approval

This senior career pathway project for media production is a capstone course designed for students who have successfully invested a minimum of three advanced academy courses in any one academy. This course allows students to utilize their secondary coursework through an experience that showcases their learning. It provides an opportunity for a student to choose an area of interest and engage in an in-depth exploration of the area while demonstrating problem-solving, decision-making and independent learning skills. The Senior Career Pathway Project contributes to an education plan of challenging courses and practical experiences that prepares students for post-secondary education studies and training.
Film, Digital, & Media Production Program

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>440017</td>
<td>Intro to Film and Digital Media</td>
</tr>
<tr>
<td></td>
<td>440018</td>
<td>Media Production</td>
</tr>
<tr>
<td>10th Grade</td>
<td>440019</td>
<td>Studio Production</td>
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<tr>
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<td>440004</td>
<td>Digital Filmmaking I</td>
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<tr>
<td>11th Grade</td>
<td>440020</td>
<td>Digital Filmmaking II</td>
</tr>
<tr>
<td></td>
<td>440021</td>
<td>Adv. Studio Production &amp; Film</td>
</tr>
<tr>
<td>12th Grade</td>
<td>400054</td>
<td>Senior Career Pathway Project</td>
</tr>
</tbody>
</table>

440017 Introduction to Film & Digital Media
Fee: $25 1 semester, 1 credit
Prerequisite: None

Students will learn the basics of broadcast production. Writing, editing, and photography skills will be taught. This course also exposes students to different types of video productions including the following: network and cable programs, reality television, music videos, and movies. Upon successful completion of this course, students are able to create weekly video projects including commercials, news stories, and mini-documentaries.

440018 Media Production
Fee: $25 1 semester, 1 credit
Prerequisites: Introduction to Film and Digital Media; Application

Transportation will be provided for students who need it. For those who have transportation, liability insurance is required for off-campus class assignments and video work.

This course is designed for students who already know the basics of Media Production. In a real-world Media Production environment, these students will produce a regularly scheduled television program for their school and/or community with students in the Media Production - Studio Operations and Media Production-Photography/Editing courses.

440004 Digital Filmmaking I
Fee: $25 1 semester, 1 credit
Prerequisites: Media Production; Recommendation from ninth grade English teacher; "B" average in Media Production, Application & Instructor Approval

This course is designed to bring a unique opportunity for advanced students to learn the art of storytelling through the mediums of film, television, and digital media. Students will explore the influence and impact that visual media has on society, culture, and within certain age groups. Also offered is advanced study of principles associated with digital cinematography, editing film technique, visual effects, and screenwriting. Upon the completion of the course, students will understand the challenges faced by artists and professionals working in the film and television industries. The areas of concentration will include finance, marketing, editing, performance, visual design, storytelling, and casting.

440019 Studio Production
Fee: $25 1 semester, 1 credit
Prerequisites: "B" average in Media Production; Recommendation from ninth grade English teacher; Application & Instructor approval

Transportation will be provided for students who need it. For those who have transportation, liability insurance is required for off-campus class assignments and video work.

In a real-world Media Production environment, these students will produce or assist in the production of a regularly scheduled television program for their school and/or community with students. Students will be responsible for creating and maintaining online media content for the course. These students will act as studio assistants to the instructor(s) as well as with the students enrolled in the Advanced Studio Production course.

440020 Digital Filmmaking II
Fee: $25 1 semester, 1 credit
Prerequisites: "B" or better average in Digital Filmmaking I, Studio Production; Application & Instructor approval

Transportation will be provided for students who need it. For those who have transportation, liability insurance is required for off-campus class assignments and video work.

The process of digital filmmaking involves the capturing footage shot for motion pictures digitally, as opposed to film. Students in this course will build upon knowledge gained during Digital Filmmaking I to create digital documentary, historical, or creative student films. Students will learn the process of movie budgeting, casting, set creation, and other major aspects of the motion picture industry. Upon completion, students will submit their original work for consideration in a local or national film festival(s).

440021 Studio Production & Film
Fee: $25 1 semester, 1 credit
Prerequisites: Two Advanced Film, Digital & Media Production courses

Transportation will be provided for students who need it. For those who have transportation, liability insurance is required for off-campus class assignments and video work.

This course will give the students the opportunity to create and market professional video productions. Students will learn the inner workings of both television and motion picture studios. Students will be responsible for IT,
equipment functionality, marketing, advertising, and budgeting.

440054 Senior Career Pathway Project

Fee: $25 1 semester, 1 credit
Prerequisites: Completed 3 Advanced Film, Digital & Media Production Academy courses

This senior career pathway project for media production is designed for students in the Film, Digital, & Media Production program. This course allows students to utilize their secondary coursework through an experience that showcases their learning. It provides an opportunity for a student to choose an area of interest and engage in an in-depth exploration of the area while demonstrating problem-solving, decision-making, and independent-learning skills. The Senior Career Pathway Project contributes to an education plan of challenging courses and practical experiences that prepares students for post-secondary education studies and training.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course Number</th>
<th>Course</th>
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<tbody>
<tr>
<td>5th Grade</td>
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<tr>
<td></td>
<td>412101</td>
<td>Building Construction 1-Construction Framing</td>
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<tr>
<td></td>
<td>432701</td>
<td>Masonry 1</td>
</tr>
<tr>
<td></td>
<td>410005</td>
<td>Introduction to Drafting Design</td>
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<td></td>
<td>430011</td>
<td>Advanced Drafting Design</td>
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<td></td>
<td>420024</td>
<td>Fish &amp; Wildlife Management (Elective)</td>
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<td></td>
<td>400025</td>
<td>Career Preparation</td>
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<tr>
<td>10th Grade</td>
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<tr>
<td></td>
<td>412102</td>
<td>Building Construction 2 – Site Preparation</td>
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<td></td>
<td>432702</td>
<td>Masonry 2</td>
</tr>
<tr>
<td></td>
<td>430016</td>
<td>Three-Dimensional Solid Design I</td>
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<tr>
<td></td>
<td>430017</td>
<td>Three-Dimensional Solid Design II</td>
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<td></td>
<td>432501</td>
<td>Electrical Technologies 1</td>
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<td></td>
<td>432901</td>
<td>Welding 1</td>
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<tr>
<td>11th Grade</td>
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<tr>
<td></td>
<td>412103</td>
<td>Building Construction 3-Construction Finishing</td>
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<td></td>
<td>432703</td>
<td>Masonry 3</td>
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<tr>
<td></td>
<td>430013</td>
<td>Introduction to Architectural Design</td>
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<td>430014</td>
<td>Intermediate Architectural Design</td>
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<td>432502</td>
<td>Electrical Technologies 2</td>
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<td></td>
<td>432602</td>
<td>Welding 2</td>
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<td>12th Grade</td>
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<td></td>
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<td>Electrical Technologies 3</td>
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<td>Advanced Architectural Design</td>
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<td></td>
<td>432903</td>
<td>Welding 3</td>
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<td></td>
<td>432904</td>
<td>Welding 4</td>
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</tbody>
</table>

Building Sciences Academy
(Construction, Drafting, Electrical Technology, Welding, and Masonry)

The Building Sciences Academy is a holistic curriculum that provides the fundamental knowledge of the architecture and construction industry, bridging construction, engineering, and building research. Programs in Construction, Drafting Design, Electrical Technology, Masonry, and Welding Technology use project-based, hands-on instruction that strongly emphasize the application of mathematics, physics, and chemical and environmental sciences. Daily attendance is a critical component for student success. Hands-on work experiences and SkillsUSA leadership activities provide many opportunities to enhance classroom instruction and career development.

<table>
<thead>
<tr>
<th>Course</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>412101</td>
<td>Building Construction 1: Construction Framing</td>
</tr>
<tr>
<td></td>
<td>Fee: $25 1 semester, 1 credit</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: None</td>
</tr>
</tbody>
</table>

This course is designed to complete all core requirements for NCCER Core Credentialing and to facilitate students' understanding of the framing components of typical structures. Emphasis is placed on safety, floor systems, wall and ceiling framing, stair construction, and roof framing.

412102 Building Construction 2: Site Preparation

Fee: $25 1 semester, 1 credit
Prerequisites: Building Construction 1
and teacher recommendation

This course is designed to facilitate students' understanding of the first phases of construction including types of structures and their uses. This course meets partial requirements for NCCER Construction Technology credentials.

412103 Building Construction 3: Construction Finishing

Fee: $25 1 semester, 1 credit
Prerequisites: Building Construction 2
and teacher recommendation

This course is designed to provide instruction on all common exterior and interior finishing phases of a
structure. This course meets partial requirements for NCCER Construction Technology credentials.

**Drafting: Engineering/Architectural Drawing Program**

Drafting Design uses technical drawing and computer skills to create drawings, plans, and computer models used in building, manufacturing design, and construction fields. Computer-Aided Design and Drafting (CADD) skills are critical in engineering; construction; architectural and interior design; fashion design; manufacturing and developmental designs of parts and products including automotive, aerospace, marine vessel/equipment, and multimedia design; photographic rendering; and animation. Strong mathematical skills including measures and fractions, as well as special/conceptual design and critical thinking skills are recommended. Students participate in SkillsUSA as an integral part of the instructional program. College credit options are available with a “B” or better average in three or more courses in any one pathway.

**410005 Introduction to Drafting Design**  
Fee: $25  1 semester, 1 credit  
Prerequisites: "C" or above in Algebra I and Geometry;  
Instructor's approval

This foundational program is open to students, grades 10-12, and provides the framework for preparing students interested in pursuing a profession in engineering, architecture, design, and construction-related fields in the basics of Computer-Aided Drafting and Design. Emphasis is placed on student safety, tools, procedures, visualization, sketching orthographic projection, geometric construction, and dimensioning practices. Computer-Aided Drafting (CAD) functions and techniques using CAD software applications are introduced.

**430011 Advanced Drafting Design**  
Fee: $25  1 semester, 1 credit  
Prerequisite: Introduction to Drafting Design

This course is for students who are interested in engineering and related mechanical drafting areas that provide a more in-depth study of mechanical design. Emphasis is placed on detailed parts drawings, bill of materials, and assembly drawings. Students are introduced to basic Geometric Dimensioning and Tolerancing (GD&T) applications. Through intersections and development, students acquire basic sheet metal forming knowledge. Using this knowledge, students lay, set out, and form models of geometric figures. Career readiness projects allow students opportunities to research industry standards and practices.

**430016 Three-Dimensional Solid Design I**  
Fee: $25 1 semester, 1 credit  
Prerequisite: Advanced Drafting Design

This course is intended to introduce the students to three-dimensional modeling utilizing three-dimensional capabilities of Computer-Aided Design (CAD) software. Emphasis is placed on working planes, profile creation, protrusions, extrusions, and rendering techniques. Students create two-dimensional part drawings relative to three-dimensional models.

**430017 Three-Dimensional Solid Design II**  
Fee: $25 1 semester, 1 credit  
Prerequisite: Three-Dimensional Solid Design I

This course is intended for advanced students in three-dimensional modeling. Emphasis is placed on assembly, animation, and sheet metal concepts. Students organize and develop a career-related project based on current research and design practices.

**430013 Introduction to Architectural Design**  
Fee: $25 1 semester, 1 credit  
Prerequisite: Advanced Drafting Design

Students in grades 10 through 12 will be introduced to the basic terminology, concepts, and principles of the architectural design field. Emphasis is placed on floor plan layout, electrical layout, foundations, typical elevations, and section drawings. Upon successful completion of this course, students are able to draw a basic residential architectural construction drawing.

**430014 Intermediate Architectural Design**  
Fee: $25 1 semester, 1 credit  
Prerequisite: Introduction to Architectural Design

This course provides students with instruction and experiences in advanced architectural design concepts and principles including residential architectural layout and plans.

**430015 Advanced Architectural Design**  
Fee: $25 1 semester, 1 credit  
Prerequisite: Introduction to Architectural Design

This course is for students who are interested in architecture and related architectural drafting areas that provide more in-depth study of architecture. Emphasis is placed on detailed residential drawings, bill of materials, and assembly drawing. Career readiness projects allow students opportunities to research industry standards and practices.
**Electrical Technology Program**

**432501 Electrical Technologies 1**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Appropriate 4-year plan and Career Interest documentation

This course is the first of three required one-credit courses in the Electrical Technologies pathway. It is designed to complete all core requirements for NCCER Core Credentialing and to provide students with fundamental knowledge and skills emphasizing use of hand tools, power tools, and electrical theory which are utilized in the construction industry and required for NCCER Electrical Level 1 Credentialing.

**432502 Electrical Technologies 2**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Electrical Technologies 1 and teacher recommendation

This course is the second of three required one-credit courses in the Electrical Technologies pathway. It is designed to provide students with theory, practice, and skills development. Emphasis is placed on fundamental knowledge and skills in basic wiring, understanding circuitry, performing basic wiring patterns, and using the National Electric Code (NEC) leading to NCCER Electrical Level 1 Credentialing.

**432503 Electrical Technologies 3**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Electrical Technologies 2 and teacher recommendation

This course is the third of three required one-credit courses in the Electrical Technologies pathway. It is designed to provide students with theory, practice, and skills development. Emphasis is placed on application and skills in intermediate wiring, circuitry, wiring patterns, and using the National Electric Code (NEC) leading to the NCCER Electrical Level 1 Credentialing.

**Masonry Program**

**432701 Masonry 1**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Appropriate 4-year plan and Career Interest Documentation

This course is the first of three required one-credit courses in the Masonry pathway. It is designed to complete all core requirements for NCCER Core Credentialing and to provide students with fundamental knowledge and skills emphasizing safety, tools, measuring, blueprint reading and layout, and basic block and brick construction techniques leading to NCCER Masonry Level 1 Credentialing.

**432702 Masonry 2**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Masonry 1 and teacher recommendation

This course is the second of three required one-credit courses in the Masonry pathway. It is designed to provide students with practice and skill development emphasizing safety, applications, and intermediate block and brick construction techniques leading to NCCER masonry Level 1 Credentialing.

**432703 Masonry 3**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Masonry 2 and teacher recommendation

This course is the third of three required one-credit courses in the Masonry pathway. It is designed to provide students with practice and skill development emphasizing safety, applications, and advanced block and brick construction techniques leading to NCCER Masonry Level 1 Credentialing.

**Welding Program**

**432901 Welding 1**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Appropriate 4-year plan and Career Interest Documentation

This course is the first of four required one-credit courses in the Welding Technologies Pathway. It is designed to complete all core requirements for NCCER Core Credentialing and to provide students with fundamental knowledge and skills emphasizing use of hand tools, power tools, welding theory, and practices which are utilized in the manufacturing and construction industry. This entry-level course is required for NCCER Welding Level 1 Credentialing and may be taken as one of the optional technical courses with credit applied to the Industrial Maintenance Technology area.
432902  Welding 2

Fee: $25  1 semester, 1 credit
Prerequisites: NCCER Welding 1 and teacher recommendation

This course is the second of four required one-credit courses in the Welding Technologies Pathway. Topics include: basic shielded metal arc welding, blueprint reading, weld symbols, joint identification, and print reading. Emphasis is placed on fundamental knowledge, guided practice, and NCCER Welding Level 1 requirements as one of the optional technical courses with credit applied to the Industrial Maintenance Technology area.

432903 Welding 3

Fee: $25  1 semester, 1 credit
Prerequisites: NCCER Welding 2 and teacher recommendation

This course is the third of four required one-credit courses in the Welding Technologies Pathway. It is designed to provide students with theory, practice, and skills development. Emphasis is placed on application and operation of shielded metal arc welding (SMAW), equipment in the vertical, 3-F and overhead, and 4-F positions leading to NCCER Welding Level 1 Credentialing.

432904 Welding 4

Fee: $25  1 semester, 1 credit
Prerequisites: NCCER Welding 3 and teacher recommendation

This course is the fourth of four required one-credit courses in the Welding Technologies Pathway. It is designed to provide students with additional practice and skills development. Emphasis is placed on application and operation of shielded metal arc welding (SMAW), equipment and mastery in the vertical, 3-F and overhead, and 4-F positions leading to NCCER Welding Level 1 Credentialing and AWS Plate Certification.

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Engineering Academy
(Project Lead The Way) PLTW

Project Lead The Way (PLTW) is a nationally recognized curriculum that offers hands-on, problem-based comprehensive lessons and emphasizes critical thinking, creativity, innovation, and real-world problem solving. Through PLTW courses, students will be provided with a foundation and proven path to post-secondary, training, and career success in STEM-related fields. PLTW is now used in 50 states at 4,500 implementation sites.

Project Lead the Way implementation will begin in middle school in CTE electives that include an overview of the following curriculum: Design and Modeling, Automation and Robotics, Energy and the Environment, Flight and Space, Magic of Electronics, and Science of Technology. These courses will prepare students for the Engineering Academy or for other STEM-related interests.

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>560015</td>
<td>Introduction to Engineering Design</td>
</tr>
<tr>
<td></td>
<td>410005</td>
<td>Introduction to Drafting Design (Optional)</td>
</tr>
<tr>
<td>10th Grade</td>
<td>560016</td>
<td>Principles of Engineering</td>
</tr>
<tr>
<td></td>
<td>430011</td>
<td>Advanced Drafting Design (Optional)</td>
</tr>
<tr>
<td>11th Grade</td>
<td>560020</td>
<td>Civil Engineering and Architecture</td>
</tr>
<tr>
<td></td>
<td>430013</td>
<td>Introduction to Architectural Design (Optional)</td>
</tr>
<tr>
<td>12th Grade</td>
<td>560021</td>
<td>Computer Integrated Manufacturing</td>
</tr>
<tr>
<td></td>
<td>560022</td>
<td>Engineering Design and Dev.</td>
</tr>
</tbody>
</table>

560015 Introduction to Engineering Design: Project Lead the Way (PLTW)

Fee: $25  1 semester, 1 credit
Prerequisite: None

This course uses a design development process while enriching problem-solving skills. Students create and analyze models using specialized computer software.

560016 Principles of Engineering: Project Lead the Way (PLTW)

Fee: $25  1 semester, 1 credit
Prerequisites: Introduction to Engineering Design PLTW; successful completion of Algebra 1; currently enrolled in or successfully completed Geometry; teacher recommendation

This course is designed to explore technology systems and manufacturing processes.

560020 Civil Engineering and Architecture: Project Lead the Way (PLTW)

Fee: $25  1 semester, 1 credit
Prerequisites: Principles of Engineering PLTW; teacher recommendation

This course introduces students to the interdependent fields of civil engineering and architecture. Students learn project planning, site planning, and building design.

560021 Computer Integrated Manufacturing: Project Lead the Way (PLTW)

Fee: $25  1 semester, 1 credit
Prerequisites: Introduction to Engineering Design and Principles of Engineering PLTW; teacher recommendation
This course is designed to enhance computer modeling skills by applying principles of robotics and automation to the creation of models of three-dimensional designs.

560022 Engineering Design and Development: Project Lead the Way (PLTW)
Fee: $25  1 semester, 1 credit
Prerequisites: Introduction to Engineering Design and Principles of Engineering PLTW; teacher recommendation

This course is designed for students to research and formulate a solution to an open-ended engineering question. Students create written reports, defend the reports, and submit them to a panel of outside reviewers at the end of the school year.

Finance Academy

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>450006</td>
<td>Microsoft IT I</td>
</tr>
<tr>
<td>10th Grade</td>
<td>400021</td>
<td>Personal Finance (elective)</td>
</tr>
<tr>
<td></td>
<td>450021</td>
<td>Business Finance</td>
</tr>
<tr>
<td>11th Grade</td>
<td>470012</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>470021</td>
<td>Financial Management</td>
</tr>
<tr>
<td>12th Grade</td>
<td>400031</td>
<td>Cooperative Education Seminar (Optional)</td>
</tr>
<tr>
<td></td>
<td>470061</td>
<td>Senior Career Pathway Project</td>
</tr>
</tbody>
</table>

Finance, Insurance, and Corporate Finance Programs

210036 Algebra with Finance
Fee: none  1 semester, 1 credit
Prerequisites: Successful completion of Algebra I or IB, Geometry, and Algebraic Connections

This course is designed to be taught by mathematics teachers or career and technical teachers and may be used as the fourth math credit required for graduation, replacing Algebra I or Algebra II with Trigonometry.

This is a college and career preparatory course that integrates algebra, precalculus, probability and statistics, calculus, and geometry to solve financial problems that occur in everyday life. Students are encouraged to use a variety of problem-solving skills and strategies in real-world contexts and to question outcomes using mathematical analysis and data to support their findings. Math concepts and skills are applied through study and problem-solving activities in workforce situations in the following areas: banking, investing, employment and income taxes, automobile ownership and operation, mathematical operations, consumer credit, independent living, and retirement planning and budgeting.

450006 Microsoft IT I
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or Higher in Career Preparedness and/or Instructor's approval

This course is designed to provide students with the 21st century technology skills necessary to acquire certification and be competitive in today's rapidly evolving workspace. MS IT I will help students develop basic skills that will lead to certification as a Microsoft Office Specialist, demonstrating that they are proficient in the Microsoft Office Suite and that they possess the up-to-date skills for college and career readiness. Becoming a Microsoft Office Specialist helps increase everyday productivity while providing the tools to succeed in a technology-driven world. This course is suited for the student who already has basic computer skills. Simulations and projects promoting teamwork, leadership, and workplace skills offer further opportunities for application of knowledge and skills. This course satisfies the online learning experience required for the Alabama High School Diploma. Students are strongly encouraged to continue their course work by completing the Microsoft IT II course.

400021 Personal Finance
Fee: $25  1 semester, 1 credit
Prerequisite: MS IT I

This course introduces students to the management of personal and family resources to achieve personal goals and financial literacy. Course content provides opportunities for students to explore consumer behavior, laws and legislation, consumer protection, consumer rights and responsibilities, consumer decision making, advertising and promotional techniques, individual and family money management, banking services, use of credit, income tax, and technology and careers in providing financial services to individuals and families. This course will count as one elective credit in the Business Informational Technology Pathway.

450021 Business Finance
Fee: $25  1 semester, 1 credit
Prerequisite: None

This course is designed to provide students with an overview of the principles of business finance. The curriculum focuses on major areas of study including economics, marketing, accounting procedures, and the global financial market. An integral component of the curriculum is the application of decision-making skills that enables students to become more responsible consumers, producers, or business entrepreneurs.
450031 Microsoft IT II

Fee: $25  1 semester, 1 credit
Prerequisites: Microsoft IT I with a "C" or higher and/or Instructor's approval

This course is designed to provide students with the 21st century technology skills necessary to acquire certification and be competitive in today's rapidly evolving workplace. MS IT II will help students develop advanced skills that will lead to certification as a Microsoft Office Specialist, demonstrating that they are proficient in the Microsoft Office Suite and that they possess the up-to-date skills for college and career readiness. Becoming a Microsoft Office Specialist helps increase everyday productivity while providing the tools to succeed in a technology-driven world. This course provides students with project-based applications of concepts learned in Microsoft Office IT I. Personal computing and business skills are integrated throughout the course as students use a variety of software applications to produce and prepare documents for publication and learn how to select appropriate software for generating information. A major emphasis is placed on guiding students through real-world experiences to aid in the school-to-career transition with special emphasis placed on Microsoft Office Certification.

470012 Accounting

Fee: $25  1 semester, 1 credit
Prerequisite: MS IT I

This course is designed to help students understand the basic principles of the accounting cycle. Emphasis is placed on basic accounting, analyzing and recording business transactions, preparing and interpreting financial statements, and performing banking and payroll activities.

470021 Financial Management

Fee: $25  1 semester, 1 credit
Prerequisite: "C" or higher in Advanced Accounting

This course is designed to provide students with an overview of financial and investment planning procedures. Students interpret financial data to develop short-term and long-term budgetary plans, produce accurate reports, and make informed business decisions.

400031 Cooperative Education Seminar

Fee: $25  1 semester, 1 credit
Prerequisite: None

This work-based experience requires a minimum of 270 continuous and successful hours of employment performed under the supervision of a workplace mentor, the work-based mentor, and the work-based learning/cooperative education coordinator. Students enrolled in work-based experiences are required to participate in Cooperative Education Seminar one block period per week.

470061 Senior Career Pathway Project

Fee: $25  1 semester, 1 credit
Prerequisites: Successful completion of three or more Finance Academy courses; instructor approval

This course is a capstone course designed for students that have successfully invested a minimum of three advanced academy courses in any one academy. This course allows students to utilize their secondary coursework through an experience that showcases their learning. It provides an opportunity for a student to choose an area of interest and engage in an in-depth exploration of the area while demonstrating problem-solving, decision-making, and independent-learning skills. The Senior Career Pathway Project contributes to an education plan of challenging courses and practical experiences that prepares students for post-secondary education studies and training.

Hospitality and Tourism Academy

<table>
<thead>
<tr>
<th>Grade</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th</td>
<td>500011</td>
<td>Hospitality and Tourism</td>
</tr>
<tr>
<td>10th</td>
<td>500021</td>
<td>Travel and Tourism I</td>
</tr>
<tr>
<td></td>
<td>500031</td>
<td>Lodging (Hotel Management) I</td>
</tr>
<tr>
<td>11th</td>
<td>500022</td>
<td>Travel and Tourism II</td>
</tr>
<tr>
<td></td>
<td>500032</td>
<td>Lodging (Hotel Management) II</td>
</tr>
<tr>
<td></td>
<td>400031</td>
<td>Cooperative Education Seminar</td>
</tr>
<tr>
<td>12th</td>
<td></td>
<td>Applicants with a &quot;B&quot; average may dual-enroll in the Shelton State Culinary Program upon administrative approval</td>
</tr>
</tbody>
</table>

500011 Hospitality and Tourism

Fee: $25  1 semester, 1 credit
Prerequisite: None

This is a foundation course designed to introduce students to the hospitality and tourism industry, lodging industry, and culinary arts. A school-based laboratory (commercial food service kitchen with a food serving and dining area) is required for this course.

500021 Travel and Tourism I

Fee: $25  1 semester, 1 credit
Prerequisite: Hospitality and Tourism

This course focuses on the development, research, packaging, promotion, and delivery of a traveler's experiences that may include creating guide books, planning trips and events, managing a customer's travel plans, or overseeing a convention center.
500031 Lodging I (Hotel Management)
Fee: $25  1 semester, 1 credit
Prerequisite: Hospitality and Tourism

This course is designed to prepare students to perform tasks related to the operation of lodging facilities and the care of guests who use these facilities, either through direct guest contact or the provision of background services that enhance guest experience.

500022 Travel and Tourism II
Fee: $25  1 semester, 1 credit
Prerequisite: Travel and Tourism I

This course is designed to provide knowledge and skill in understanding economics, marketing operations, admissions to events, safety and security precautions, and local and regional markets.

500032 Lodging II (Hotel and Management)
Fee: $25  1 semester, 1 credit
Prerequisite: Lodging I

This course focuses on the application of basic principles of the hotel and lodging industry. Students develop skills in various functional areas of hotel operation including front desk operations, guest registrations, housekeeping, convention sales, food and beverage services, and guest services. A school-based laboratory is required for this course.

400031 Cooperative Education Seminar
Fee: $25  1 semester, 1 credit
Prerequisite: None

This work-based experience requires a minimum of 270 continuous and successful hours of employment performed under the supervision of a workplace mentor, the work-based mentor, and the work-based learning/cooperative education coordinator. Students enrolled in work-based experiences are required to participate in Cooperative Education Seminar one block per week.

Human Services Academy

Cosmetology Program

Cosmetology is the science of hair and skin-care techniques including hair styling and coloring, chemical services and nail care. Cosmetology is a people-oriented profession, requiring continuous professional development, long work hours, and dedication.

Problem-solving and critical-thinking skills are essential and many opportunities are provided for student growth in level of competence. Proficiency in grade-level math and science including chemistry, Algebra 1 or Algebra 1A and B is recommended. Lab activities account for a significant part of the overall grade; therefore, daily attendance and class/lab participation is imperative to ensure success.

Students are encouraged to participate in SkillsUSA, the Career and Technical Student Organization for Cosmetology. Membership and participation in SkillsUSA serves as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>10th Grade</td>
<td>510060</td>
<td>Introduction to Cosmetology</td>
</tr>
<tr>
<td>11th Grade</td>
<td>510062</td>
<td>Chemical Services</td>
</tr>
<tr>
<td>11th Grade</td>
<td>510061</td>
<td>Hair Coloring</td>
</tr>
<tr>
<td>11th Grade</td>
<td>510065</td>
<td>Salon Practices and Management</td>
</tr>
<tr>
<td>12th Grade</td>
<td>510068</td>
<td>State Board Practicum</td>
</tr>
<tr>
<td>12th Grade</td>
<td>510066</td>
<td>Introduction to Nail Care and Application</td>
</tr>
</tbody>
</table>

510060 Introduction to Cosmetology
Fee: $25  1 semester, 1 credit
Prerequisites: Application and instructor approval; age 16 or older

This course provides students with a study of concepts related to the cosmetology profession. Specific topics include cosmetology history and opportunities, professional image, infection control, basic fundamentals, and principles of hair design. Students also gain initial practical experiences in sanitation, shampooing, hair styling, and hairstyling. Upon successful completion of this course, students are able to practice safety and sanitary precautions as they perform basic cosmetology procedures. Introduction to Cosmetology is the prerequisite for Hair Coloring, Chemical Service, Salon Practices and Management, and State Board Practicum. Introduction to Cosmetology must be taken with Chemical Services.

510061 Hair Coloring
Fee: $25  1 semester, 1 credit
Prerequisites: Introduction to Cosmetology and Chemical Services course completion; application and instructor approval

This course provides students with study and experience in hair coloring and lightening. Emphasis is placed on color application, laws, levels and classifications of color, and problem solving. Upon successful completion of this course, students are able to identify all phases of hair coloring, its effects upon the hair, and perform procedures for hair coloring and lightening. Hair Coloring must be taken with Salon Practices and Management.
510062 Chemical Services
Fee: $25 1 semester, 1 credit
Prerequisites: "C" or higher in Introduction to Cosmetology; instructor approval
This course focuses on the theory of chemical services related to chemical hair texturing. Specific topics include basics of chemistry and electricity, properties of the hair and scalp, and chemical texture services. Students also gain initial practical experience in performing various chemical texturing activities. Emphasis is placed on safety, chemical use and handling, hair and scalp analysis, and client consultation. Upon successful completion of this course, students are able to practice safely and sanitary precautions as they perform these chemical services. Chemical Services must be taken with Introduction to Cosmetology.

510065 Salon Practices and Management
Fee: $25 1 semester 1 credit
Prerequisites: Hair Coloring and Chemical Services
This course enables students to develop entry-level management skills for the cosmetology industry. Students will practice all phases of cosmetology in a salon setting. Upon successful completion of this course, students are able to demonstrate professional work ethics and communication skills, job-seeking and management skills, and exhibit knowledge of the technology used in salons. Salon Practices and Management must be paired with Introduction to Nail Care and Application.

510068 State Board Practicum
Fee: $25 1 semester, 1 credit
Prerequisites: Hair Coloring and Chemical Services
This culminating course provides students with a comprehensive study of State Board procedures and practical applications in cosmetology and nail care. The course consists of Pathway A—Cosmetology, content standards 1-19, and Pathway B—Nail Care Services, content standards 1-13 and 20-22. Upon successful completion of this course, students are able to demonstrate practical skills necessary for meeting state licensure requirements and for successful employment. State Board Practicum must be taken with Salon Practice and Management.

510066 Introduction to Nail Care and Application
Fee: $25 1 semester, 1 credit
Prerequisites: "C" or higher in Hair Coloring/Salon Practice and Management; instructor approval
This course focuses on all aspects of the nail care industry. Emphasis is placed on nail care history and opportunities, nail and skin services, sanitation and bacteriology, and salon conduct.

Information Technology Academy (IT)
(Microsoft Office IT Certification; Computer Science; Computer Support Services)

<table>
<thead>
<tr>
<th>Grade/ Pathway</th>
<th>Course #</th>
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</thead>
<tbody>
<tr>
<td>9th Grade</td>
<td>450006</td>
<td>Microsoft IT I</td>
</tr>
<tr>
<td>10th Grade</td>
<td>450031</td>
<td>Microsoft IT II Must have a &quot;C&quot; or better average in MS IT I and Instructor Approval</td>
</tr>
<tr>
<td>11th Grade</td>
<td>410016</td>
<td>Multimedia Design</td>
</tr>
<tr>
<td>12th Grade</td>
<td>410017</td>
<td>Multimedia Publications</td>
</tr>
</tbody>
</table>

450006 Microsoft IT I
Fee: $25 1 semester, 1 credit
Prerequisites: "C" or higher in Career Preparedness and/or Instructor's approval
This course is designed to provide students with the 21st century technology skills necessary to acquire certification and be competitive in today's rapidly evolving workspace. MS IT I will help students develop basic skills that will lead to certification as a Microsoft Office Specialist, demonstrating that they are proficient in the Microsoft Office Suite and that they possess the up-to-date skills for college and career readiness. Becoming a Microsoft Office Specialist helps increase everyday productivity while providing the tools to succeed in a technology-driven world. This course is suited for the student who already has basic computer skills. Simulations and projects promoting teamwork, leadership, and workplace skills offer further opportunities for application of knowledge and skills. This course satisfies the online learning experience required for the Alabama High School Diploma.

450031 Microsoft IT II
Fee: $25 1 semester, 1 credit
Prerequisites: MS IT I; Instructor approval
This course is designed to provide students with the 21st century technology skills necessary to acquire certification and be competitive in today's rapidly evolving workplace. MS IT II will help students develop advanced skills that will lead to certification as a Microsoft Office Specialist, demonstrating that they are proficient in the Microsoft Office Suite and that they possess the up-to-date skills for college and career readiness. Becoming a Microsoft Office Specialist helps increase everyday productivity while providing the tools to succeed in a technology-driven world. This course provides students with project-based applications of concepts learned in Microsoft Office IT I.
Personal computing and business skills are integrated throughout the course as students use a variety of software applications to produce and prepare documents for publication and learn how to select appropriate software for generating information. A major emphasis is placed on guiding students through real-world experiences to aid in the school-to-career transition with special emphasis placed on Microsoft Office Certification.

410016 Multimedia Design

Fee: $25 1 semester, 1 credit
Prerequisites: MS IT I & II

This course is designed to provide students with hands-on skills involving graphic design, web publishing, and digital video production. Students use various hardware peripherals and software for completing projects. This course will count as one core credit in the Business Information Technology Career Pathway.

410017 Multimedia Publications

Fee: $25 1 semester, 1 credit
Prerequisites: MS IT I & II

This course is designed to provide students with the ability to utilize digital photography and multimedia digital imaging software to produce interactive media projects and to develop publication layouts. Students use various hardware peripherals as well as the Internet for integrating skills to create a variety of publications. This course will count as one core credit in the Business Information Technology Career Pathway.

<table>
<thead>
<tr>
<th>Computer Science</th>
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<tbody>
<tr>
<td>Grade</td>
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<tr>
<td>9th Grade</td>
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<tr>
<td>450006</td>
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<tr>
<td>450031</td>
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<tr>
<td>10th Grade</td>
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<tr>
<td>410016</td>
</tr>
<tr>
<td>Must have a &quot;C&quot; or better average in MS IT I and Instructor Approval</td>
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<tr>
<td>410017</td>
</tr>
<tr>
<td>Must have a &quot;C&quot; or better average in MS IT II and Instructor Approval</td>
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<tr>
<td>11th Grade</td>
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<tr>
<td>520008</td>
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<tr>
<td>Must have a &quot;C&quot; or better average in Multimedia Design and Instructor Approval</td>
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<tr>
<td>12th Grade</td>
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</tbody>
</table>

520008 Computer Science Principles

Fee: None 1 semester, 1 credit
Prerequisites: Algebra I, Geometry, Algebra II with Trigonometry

This course is designed to introduce students to the central ideas of professional-level computing and the primary principles of computer science. The course content is focused on creativity, abstraction, algorithms, programming, big data, Internet/networking, and societal impact. This course is officially in the pilot stage and is being developed by the College Board and the National Science Foundation. This course will be taught as an AP course. This course will count as a math elective for high school graduation requirements. Students who take the AP Computer Science exam will receive one additional quality point towards their GPA (the AP test for this course will not be available until May 2017).

<table>
<thead>
<tr>
<th>Computer Support Services</th>
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<tbody>
<tr>
<td>Grade</td>
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<td>9th Grade</td>
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<td>450006</td>
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<tr>
<td>520005</td>
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<td>10th Grade</td>
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<td>430058</td>
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<tr>
<td>410018</td>
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<tr>
<td>11th Grade</td>
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<tr>
<td>410019</td>
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<tr>
<td>520021</td>
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<tr>
<td>12th Grade</td>
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<tr>
<td>400023</td>
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</tbody>
</table>

520005 Information Technology Fundamentals

Fee: $25 1 semester, 1 credit
Prerequisites:
(Recommended) Successful completion of Direct Current and MS IT I or equivalent; instructor approval

This course introduces students to the knowledge and technical skills for information technology careers. Students study the nature of business and demonstrate knowledge of the functions of information systems in business. Emphasis is placed on maintaining a safe working environment and on building interpersonal skills needed for working in the information technology environment. Students demonstrate appropriate knowledge and behaviors regarding legal responsibilities of information technology professionals and explore a variety of information technology career opportunities and develop a personal career plan to meet career goals and objectives.

410018 Information Technology Support and Service

Fee: $25 1 semester, 1 credit
Prerequisites: Information Technology Fundamentals

This course provides students with knowledge and skills regarding the maintenance, upgrading, and configuration of PC hardware, components, and peripherals. Upon successful completion of this course, students are able to maintain, upgrade, and configure PC systems. Students receive both classroom instruction and hands-on laboratory experiences. A strong emphasis is placed on proper safety practices and industry ethics.

410019 Computer Management Support

Fee: $25 1 semester, 1 credit
Prerequisite: Information Technology Support and Service

This course provides students with knowledge and skills regarding computer operating systems and application software. Upon successful completion of this course students are able to install and maintain computer
software. Students receive both classroom instruction and hands-on laboratory experiences. A strong emphasis is placed on proper safety practices and industry ethics.

520021 Networking I
Fee: $25 1 semester, 1 credit
Prerequisites: "C" or better in Computer Management Support and Instructor approval

This course provides students with knowledge and skills regarding computer basics, the 7-layer OSI model, network system conversions, and Local Area Network (LAN) devices. Upon successful completion of this course, students are able to install, test, and maintain LANs. Students receive both classroom instruction and hands-on laboratory experiences. A strong emphasis is placed on proper safety practices and industry ethics.

Medical Sciences Academy
(Emergency Services, Health Sciences, & Veterinary Sciences)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>530004</td>
<td>Principles of Public Safety**</td>
</tr>
<tr>
<td>530011</td>
<td>Introduction to Fire Science**</td>
</tr>
<tr>
<td>420029</td>
<td>Wildland Firefighter</td>
</tr>
<tr>
<td>530012</td>
<td>Firefighting (FF/180)</td>
</tr>
<tr>
<td>410024</td>
<td>Emergency Services (EMT Basic)</td>
</tr>
</tbody>
</table>

530004 Principles of Public Safety
Fee: $25 1 semester, 1 credit
Prerequisite: None

This course is designed to introduce students to the competencies related to public service job preparatory programs. Students develop knowledge and skills in fire management services, legal services, and law enforcement services.

530011 Introduction to Fire Science
Fee: $25 1 semester, 1 credit
Prerequisites: Principles of Public Safety and/or Instructor Approval

This course is designed to introduce students to the basic principles and procedures of firefighting. Emphasis is placed on safety, fire behavior, communication equipment, fire extinguishers, structural design, personal protective equipment, ropes and knots, search and rescue, ground ladders, ventilation, fundamentals of a water supply system, fire hose, and water streams.

410024 Emergency Services
530012 Firefighting
Fee: $107 (includes uniform with exception of boots & insurance) 2 semesters, 2 credits
Prerequisites: 2.5 minimum GPA and "C" or better in Anatomy; teacher recommendation; **Principles of Public Safety, Introduction of Fire Science or Instructor Approval.

*Medical Physical Required due to strenuous physical demands of the program.

Each of these courses will be taking together as a combination course. This is designed for students in grade 12 to provide students with the certifications and skills necessary to be "career ready" in Firefighting and Emergency Medical Services. Students will need to turn 18 within a year of completion in order to finish the certification process. Successful completion of this exam is the first step necessary in order to receive a state license as an EMT. Students will also be able to attend an abbreviated "Rookie School" (5 weeks) to earn a professional certification in firefighting from the Alabama Fire College. Due to the partnership with The Alabama Fire College, students will have access to the latest technology in the Fire Service industry. Students must provide transportation in compliance to TCBE policy. Certification requirements may require students to attend classes as early as 7:30 a.m., as well as fully utilize bonus period instructional time. Physical training is an integral component of the class and certification requirements. Students must obtain medical clearance prior to taking this program option. When not in uniform, school dress code will be strictly enforced.

Health Science Program

The purpose of the Health Science Program is to introduce students to the healthcare system, assist students to make realistic career decisions, develop students' leadership skills, and prepare students for acceptance in a post-secondary healthcare education program and/or employment in healthcare jobs. It is critical that students prepare for careers in health science to meet the increasing and changing demands of various populations and of the rapidly developing biomedical industry.

Students in the health science program must achieve academic goals and meet the expectations of business and industry. The health science program provides the flexibility for meeting the needs of all students. This cluster encompasses integrated academics and technology and includes a variety of course selections with materials relevant to the twenty-first century. The health science program emphasizes the importance of project, service, and work-based learning experiences. Development of leadership is enhanced through student participation in Health Occupations Students of America (HOSA). Health Science is competency-based, utilizing learner-centered
instruction that provides opportunities for students to learn skills necessary for a career path in health science.

Because of legalities, liabilities, responsibilities of professional healthcare workers, and patient rights, students shall not be assigned to the clinical experience segment of the program until they are considered competent in basic skills in their chosen occupational area as determined by the Health Science instructor. Students participating in clinical experiences will be required to pay an additional fee for liability insurance coverage. Students in advanced level programs are required to purchase an approved uniform.

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
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<tbody>
<tr>
<td>10th Grade</td>
<td>490033</td>
<td>Medical Terminology</td>
</tr>
<tr>
<td>11th Grade</td>
<td>490007</td>
<td>Foundations of Health Science</td>
</tr>
<tr>
<td></td>
<td>490033</td>
<td>Medical Terminology</td>
</tr>
<tr>
<td>12th Grade</td>
<td>490007</td>
<td>Foundations of Health Science</td>
</tr>
<tr>
<td></td>
<td>490013</td>
<td>Health Science Internship (1 credit)</td>
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<tr>
<td></td>
<td></td>
<td>Only for seniors who begin the Health Science program at the beginning of their 12th grade year. Students will earn concentrator status with the successful completion of these 2 courses.</td>
</tr>
<tr>
<td></td>
<td>490033</td>
<td>Medical Terminology</td>
</tr>
<tr>
<td></td>
<td>410024</td>
<td>Emergency Services</td>
</tr>
<tr>
<td></td>
<td>410004</td>
<td>Veterinary Science</td>
</tr>
<tr>
<td></td>
<td>490013</td>
<td>Health Science Internship &amp; Therapeutic Services (2 credits)</td>
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<td></td>
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<td>This is for seniors who began the Health Science program prior to their senior year and who are working towards completion status.</td>
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<tr>
<td></td>
<td>490034</td>
<td>Nursing Aide Training – Health Science Internship (2 credits)</td>
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<tr>
<td></td>
<td>490016</td>
<td>Advanced Health Seminar</td>
</tr>
</tbody>
</table>

**490033 Medical Terminology**  
Fee: $25  1 semester, 1 credit  
Prerequisite: Biology or Honors Biology "C" or higher

This course is designed to develop healthcare specific knowledge for a medical field. The course uses an integrated approach for teaching the language of medicine by incorporating medical terminology with anatomy and physiology and the disease process.

**490007 Foundations of Health Science**  
Fee: $25  1 semester, 1 credit  
Prerequisites: Chemistry or Honors Chemistry, and/or Human Anatomy and Physiology with a minimum "B" average or higher (both courses highly recommended); application and instructor approval required.

This is an entry course for the health science program. It is recommended for any student who plans to pursue a medical career or health-related field of study beyond high school. It introduces students to a wide range of health and medical careers, health care skills, emergency care certification, medical terminology, and current disease control and prevention. Lab and classroom studies focus on applying human anatomy and physiology to patient care skills. A large number of outside the classroom field trips offer job shadowing opportunities to local hospitals and health care agencies which gives students a real world look at health and medical careers today. Transportation will be provided for students that do need it. For those that have transportation, liability insurance is required for off-campus class assignments and clinical visits. This course will substitute for the 250002 Health Education course required for graduation.

**490013 Health Science Internship**  
**490023 Therapeutic Services**  
Fee: $87  2 semesters, 2 credits, 2 courses  
(Fe includes the cost of a uniform)  
Prerequisites: Foundations of Health Science; Application and selection required

**490034 Nursing Aide Training (Health Science Internship)**  
Fee: $87  2 semesters, 2 credits, 1 course  
(Fe includes the cost of a uniform)  
Prerequisites: Foundations of Health Science; Application

These two courses must be taken together for Health Science Internship requirements. All Criteria to Advance to Health Science Internship, as stated in the Foundations of Health Science curriculum, must be successfully met prior to approval of enrollment to this senior-level program. This course is designed for students in grade 12 who have completed Foundations of Health Science and met the criteria to advance. Students will complete 18 weeks of internship within a local healthcare facility working with professional mentors in a healthcare area(s) of their own choosing. All students will complete six weeks of professional orientation and skills training prior to entering their assigned clinical area. Transportation will be provided for students that need it. For those that have transportation, liability insurance is required for off-campus class assignments and clinical requirements.
Advanced Health Seminar
Fee: $25  1 semester, 1 credit
Prerequisites: Health Science Internship/Instructor Approval

This course provides an individualized learning experience for students who desire an in-depth study in at least one occupational area in the Health Science cluster. Students who successfully complete Foundations of Health Science and Health Science Internship may select one or more health care areas to prepare for specialization in a health career. This senior-level, work-based project is the capstone course for the Health Science cluster and can serve to complete concentration in a pathway.

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course</th>
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<tbody>
<tr>
<td>11th or 12th Grade</td>
<td>410004</td>
<td>Veterinary Sciences</td>
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</tbody>
</table>

Veterinary Sciences
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or better in Honors Biology and/or teacher recommendation; grade 11 or 12 and in good standing; Chemistry (Honors) is recommended

This course is designed to prepare students for entry-level employment or for advanced training in the veterinary-assisting industry. Topics include career opportunities, safety, reproduction and genetics, hormones and growth disorders, animal anesthesiology and basic surgery procedures, health and management, business management practices, and applications of technology.

Mechatronics Academy
(Electronic Systems and Robotics)

Computer Integrated Electronics and Manufacturing is a system in which individual engineering, production, and marketing and support functions of a manufacturing enterprise are organized into a computer-integrated system. Functional areas such as design, analysis, planning, purchasing, cost accounting, inventory control, and distribution are linked through the computer with factory floor functions such as materials handling and management, providing direct control and monitoring of all process operations.


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<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
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<tbody>
<tr>
<td>9th Grade</td>
<td>430058</td>
<td>Direct Current</td>
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<tr>
<td></td>
<td>540031</td>
<td>Introduction to Robotics</td>
</tr>
<tr>
<td>10th Grade</td>
<td>430059</td>
<td>Alternating Current</td>
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<td>432501</td>
<td>Electrical Technologies I</td>
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<tr>
<td>11th Grade</td>
<td>540015</td>
<td>Semiconductors</td>
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<td>540021</td>
<td>Digital Electronics</td>
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<tr>
<td>12th Grade</td>
<td>430056</td>
<td>Electromechanical Controls</td>
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<tr>
<td></td>
<td>540032</td>
<td>Robotics Application</td>
</tr>
</tbody>
</table>

Direct Current
Fee: $25  1 semester, 1 credit
Prerequisite: None

This course is designed to provide students with the fundamental knowledge and skills for the electrical and automotive industry. Emphasis is placed on job safety, sources, terminology and symbols, components of a basic circuit, electrical quantities and measurements, characteristics of resistors, Ohm's law in direct current circuits, circuit construction, and troubleshooting. Upon successful completion of this course, students perform basic tasks related to the electrical and automotive industry.

Introduction to Robotics
Fee: $25  1 semester, 1 credit
Prerequisites: Successful completion of at least one of the following: PLTW Design and Modeling, Automation & Design; or Electrical Technology I; Basic Wiring; Alternating Current; Direct Current; and teacher approval

This course is designed to provide students with the fundamental knowledge and skills of robotics. Emphasis is placed on fundamentals of electrical current, digital circuits, electronic control systems, and design and operation of robotics systems. Class requirements will include the preparations for competitions to include, but not limited to, the following: BEST Robotics, Blue Sky Coop (Electric Car), Vex Robotics, UA Spring Robotics Competition, and Career Technical Student Organization robotics competitive events.

Alternating Current
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or higher in Direct Current; instructor approval

This course addresses principles and concepts of magnetism, measuring electrical quantities, calculating electrical quantities using Ohm's law in alternating current circuits, and reactive currents.
Electrical Technologies 1
Fee: $25  1 semester, 1 credit
Prerequisites: Appropriate 4-year plan and Career Interest documentation

This course is the first of three required one-credit courses in the Electrical Technologies pathway. It is designed to complete all core requirements for NCCER Core Credentialing and to provide students with fundamental knowledge and skills emphasizing use of hand tools, power tools, and electrical theory, which are utilized in the construction industry and required for NCCER Electrical Level 1 Credentialing.

Semiconductors
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or higher in Direct Current; instructor approval

This course is designed to provide students with instruction on job safety and characteristics and uses of semiconductors, symbols, semiconductor circuits, and analog circuits.

Digital Electronics
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or higher in Semiconductors; instructor approval

This course introduces students to digital fundamentals and number systems. Emphasis is placed on characteristics of digital circuit signals, logic gates, logic devices, and digital circuits.

Electromechanical Controls
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or higher in Digital Electronics; instructor approval

This course is designed to provide students with the fundamental knowledge and skills in control systems, input/output devices, fluid power, and controllers.

Robotics Applications
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or higher in Electromechanical Controls; instructor approval

This course places emphasis on the applications of a variety of robotic systems. Students will design and construct a robotic system with peripheral devices.

Public Safety & Law Academy

<table>
<thead>
<tr>
<th>Grade Pathway</th>
<th>Course #</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>9th Grade</td>
<td>530004</td>
<td>Principles of Public Safety</td>
</tr>
<tr>
<td>10th Grade</td>
<td>530011</td>
<td>Introduction to Fire Science</td>
</tr>
<tr>
<td>11th Grade</td>
<td>410025</td>
<td>Forensic and Criminal Investigation</td>
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<tr>
<td>12th Grade</td>
<td>420029</td>
<td>Wildland Wildland Wildfire and Controlled Fires</td>
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<tr>
<td></td>
<td>530002</td>
<td>Fire Fighter</td>
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<tr>
<td></td>
<td>410024</td>
<td>Emergency Services</td>
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</tbody>
</table>

Students may take the Emergency Medical Technician exam at 18 years old.

53004 Principles of Public Safety
Fee: $25  1 semester, 1 credit
Prerequisite: None

This course is designed to introduce students to the competencies related to public service job preparatory programs. Students develop knowledge and skills in fire management services, legal services, and law enforcement services.

53011 Introduction to Fire Science
Fee: $25  1 semester, 1 credit
Prerequisites: Principles of Public Safety or Instructor Approval

This course is designed to introduce students to the basic principles and procedures of firefighting. Emphasis is placed on safety, fire behavior, communication equipment, fire extinguishers, structural design, personal protective equipment, ropes and knots, search and rescue, ground ladders, ventilation, fundamentals of a water supply system, fire hose, and water streams.

410025 Forensic and Criminal Investigation
Fee: $25  1 semester, 1 credit
Prerequisites: "C" or better average in Chemistry, Algebra I, and Introduction to Fire Science

This course focuses on the history of forensic science, criminal investigation, forensic serology and DNA, forensic studies in anthropology, toxicology, fingerprinting, firearms, physics, and document examination.

420029 Wildland Wildfire Fighting and Controlled Fires
Fee: $110 (includes uniform; boots purchased separately by student) 1 semester, 1 credit
Prerequisites: 2.5 GPA; "C" or better in Biology and/or Physical Science; Medical Physical required due to strenuous physical demands of the program

This physically demanding course is designed to give students a working knowledge of wildland firefighting and the use of controlled fires on forest lands. Emphasis is
placed on firefighting terminology, topography, fuel types, external influences, personal protective equipment, deployment procedures, firefighting tools and equipment, suppression tactics, and controlled burning.

410024 Emergency Services
530012 Firefighting

Fee: $107 (includes uniform with exception of boots & insurance) 2 semesters, 2 credits
Prerequisites: 2.5 minimum GPA and "C" or better in Anatomy; teacher recommendation; **Principles of Public Safety, Introduction of Fire Science or Instructor Approval.

*Medical Physical required due to strenuous physical demands of the program.

Each of these courses will be taken together as a combination course. This is designed for students in grade 12 to provide students with the certifications and skills necessary to be "career ready" in Firefighting and Emergency Medical Services. Students will need to turn 18 within a year of completion in order to finish the certification process. Successful completion of this exam is the first step necessary in order to receive a state license as an EMT. Students will also be able to attend an abbreviated "Rookie School" (5 weeks) to earn a professional certification in firefighting from The Alabama Fire College. Due to the partnership with The Alabama Fire College, students will have access to the latest technology in the Fire Service industry. Students must provide transportation in compliance to TCBF policy. Certification requirements may require students to attend classes as early as 7:30 a.m., as well as fully utilize bonus period instructional time. Physical training is an integral component of the class and certification requirements. Students must obtain medical clearance prior to taking this program option. When not in uniform, school dress code will be strictly enforced.

### Transportation Academy

Automotive Technology emphasizes critical thinking skills and requires significant mathematical computation and application, as well as a conceptual understanding of physics.

The Maintenance & Light Repair (MLR) program of study includes four courses, A-D. With the successful completion of the MLR courses, students may initiate the Automotive Service Technology (AST) program, also encompassing four courses, A-D. Completion of the AST qualifies students for National Automotive Technicians Education Foundation (NATEF)-MLR and NATEF-AST Student Certification, preparing students for the National Institute of Automotive Service Excellence (ASE) Student Credential.

Students taking automotive technology courses are required to both attend and participate in class/lab daily. Hands-on work experiences and SkillsUSA leadership activities provide many opportunities to enhance classroom and career development.

Students successfully completing the automotive technology courses with a "B" or better average may earn articulated credit hours with post-secondary educational institutions including, but not limited to, the Alabama Center for Automotive Excellence (ACAE), Lincoln College of Technology, Universal Technical Institute, Wyotech, The School of Automotive Machinists, Ohio Technical College, etc. Courses successfully completed in automotive technology will be considered towards required hours in the Mechatronics and Automotive Technology programs sponsored by Mercedes-Benz with classes held at Shelton State Community College. Application and evaluations are required for entrance in the Mechatronics and Automotive Technology programs.

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<thead>
<tr>
<th>Grade</th>
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<th>Course #</th>
<th>Course</th>
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<tbody>
<tr>
<td>9th Grade</td>
<td>570072</td>
<td>Maintenance &amp; Light Repair B (Steering/Suspension &amp; Brakes)</td>
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</tr>
<tr>
<td>10th Grade</td>
<td>570073</td>
<td>Maintenance &amp; Light Repair C (Brakes &amp; Electrical/Electronics)</td>
<td></td>
</tr>
<tr>
<td>11th Grade</td>
<td>570071</td>
<td>Maintenance &amp; Light Repair A (Engine Repair, Automatic Transmission, &amp; Manual Drive Train and Axles)</td>
<td></td>
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<tr>
<td>12th Grade</td>
<td>570075</td>
<td>Automotive Service Technology A</td>
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<td>570076</td>
<td>Automotive Service Technology B</td>
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<td>570077</td>
<td>Automotive Service Technology C</td>
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<td>570078</td>
<td>Automotive Service Technology D</td>
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<td></td>
<td>470080</td>
<td>Senior Career Pathway Project</td>
<td></td>
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</tbody>
</table>

570072 Maintenance & Light Repair B
Suspension/Steering & Brakes
Fee: $25 1 semester 1 credit
Fall Semester Only
Prerequisite: None

This course provides students with foundational knowledge and skills regarding safety, suspension, steering, and brake systems. Strong emphasis is placed on system and component operations. Upon successful completion of the course, students are able to diagnose and repair safety, suspension, steering, and brake-related systems.

570073 Maintenance & Light Repair C
Electrical, Electronics & Brakes
Fee: $25 1 semester, 1 credit
Prerequisite: Maintenance & Light Repair B

This course provides students with foundational knowledge and skills regarding safety, electrical/electronic, and brake systems. Strong emphasis is placed on system and component operation. Upon successful completion of the course, students are able to diagnose and safely repair, electrical, electronics, and brake-related systems.
570074  Maintenance & Light Repair D
Electrical/Electronics, Engine
Performance, and Heating/Air
Conditioning

Fee: $25  1 semester, 1 credit
Prerequisite: Maintenance & Light Repair C

This course is designed to provide students with foundational knowledge and skills relative to safety, engine performance, electrical/electronic systems, and heating and air conditioning systems. Strong emphasis is placed on system and component operation. Upon successful completion of the course, students are able to diagnose and safely repair engine, electrical, electronic, and heating and air conditioning systems.

570071  Maintenance & Light Repair A
Engine Repair, Automatic
Transmission, & Manual Drive Trains

Fee: $25  1 semester, 1 credit
Prerequisite: Maintenance & Light Repair D

This course is designed to provide students with foundational knowledge and skills relative to safety, engine repair, automatic transmissions, and manual drive trains.

570080  Senior Career Pathway Project

Fee: $25  1 semester, 1 credit
Prerequisites: Successful completion of 4 or more advanced Automotive Technology Academy courses; Instructor’s Approval

This course is a capstone course designed for students completing four or more courses in the Transportation Academy. This course allows students to utilize their secondary coursework through an experience that showcases their learning. It provides an opportunity for a student to choose this area of interest and engage in an in-depth exploration while demonstrating problem-solving, decision-making, and independent-learning skills. The Senior Career Pathway Project contributes to an education plan of challenging courses and practical experiences that prepares students for post-secondary education studies and training.

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ELECTIVE COURSES OFFERED AT HOME SCHOOLS

Career Technical

400016  Workforce Essentials

Fee: $25  2 semesters, 1 credit
Prerequisite: None

This course provides students with higher-level academic and occupational skills that are transferable across jobs and occupational areas. Emphasis is placed on academic foundations for careers; applied technology; career development and employment; entrepreneurship and business economics; social and ethical responsibility, leadership and teamwork; safety and health; and technical knowledge and skills. Students build on prior knowledge, strengths, interests, and needs that enhance preparation for future employment and continuing education and training. This course will count as one elective credit in the Business Information Technology Pathway.

400025  Career Preparedness

Fee: none  2 semesters, 1 credit (at home school sites)
Prerequisite: None

This course is required for graduation and is taught in grades 9 – 12 (should be taken in grade 9). Through this course, students will gain content knowledge and skills to prepare them for college and career readiness. It incorporates three components: career development and academic planning, computer skill application, and financial literacy knowledge. This course is also designed to meet the required 20-hour online experience. Upcoming sophomores, juniors, and seniors who have not taken a course to fulfill both their 20-hour online experience requirement and one-half credit computer applications requirement will take this course in place of Business Technology Applications (BTA). BTA will no longer be offered at the high school sites due to the new diploma option and the new state course, Career Preparedness. A student may, however, fulfill both the 20-hour online experience and one-half credit computer applications through another course (ACCESS course, etc.).

400026  Career Preparedness Part A: College
and Career Planning/Computer
Applications

Fee: none  1 semester, ½ credit

This course is required for graduation and is taught in grades 8 – 12. This required course is for incoming ninth graders in 2013-2014. Through this course, students will
gain content knowledge and skills to prepare them for college and career readiness. The required 20-hour online experience can be met by successfully completing both Career Preparedness A and Career Preparedness B.

**400027 Career Preparedness Part B:**

**Financial Literacy**

Fee: none 1 semester, ½ credit
Prerequisite: Career Preparedness A

This course is required for graduation and is taught in grades 9 – 12. This required course is for all incoming ninth graders in 2013-2014. Through this course, students will gain content knowledge and skills to prepare them for college and career readiness. The required 20-hour online experience can be met by successfully completing both Career Preparedness A and Career Preparedness B.

**Business Marketing**

**450007 Business Essentials**

Fee: $25 2 semesters, 1 credit
Prerequisite: Career Preparedness A

This course provides students with an understanding of how academic skills in mathematics, economics, and written and oral communications are integral components of success in commerce and information technology careers. Students examine current events to determine impact on business and industry and legal and ethical behavior, acquire knowledge of safe and secure environmental controls to enhance productivity, determine how resources are managed to achieve company goals, and identify employability and personal skills needed to obtain a career and be successful in the workplace. As students learn about different types of business ownership, they interpret industry laws and regulations to ensure compliance, identify principles of business management, and analyze business practices to determine ethical and social responsibilities.

**550021 Sales and Promotion Planning**

Fee: $25 2 semesters, 1 credit
Prerequisite: Business Essentials

This course provides the tools necessary for the development, implementation, and management of promotional programs. The focus of this course is on utilizing promotional knowledge and skills for communicating information to achieve a desired outcome. Students develop skills related to advertising, publicity, special events, visual merchandising, displays, promotional campaigns, and advertisements to aid in promotional planning. They learn to manage the sales function to determine client needs and wants and to respond through planned, personalized communication.

**550011 Marketing Principles**

Fee: $25 2 semesters, 1 credit
Prerequisite: Sales and Promotion Planning

This course is designed to provide students with an overview of in-depth marketing concepts. Students develop a foundational knowledge of marketing and its functions including marketing information management, pricing, product and service management, entrepreneurship, and promotion and selling. Students examine the need for sales and marketing strategies. Students practice customer relationship skills, ethics, technology applications, and communicating in the workplace.

**400017 Entrepreneurship**

Fee: $25 2 semesters, 1 credit
Prerequisite: Marketing Principles

This course provides students with skills needed to effectively organize, develop, create, and manage a business. This course includes business management and entrepreneurship, communication and interpersonal skills, economics, and professional development foundations. Instructional strategies may include the development of a business plan, a school-based enterprise, computer and technology applications, real and simulated occupational experiences, or projects related to business ownership.

**Family and Consumer Sciences**

*Family and Consumer Sciences (FACS)* includes a wide-array of academic disciplines associated with individuals, families, communities, and the environment in which they live. *Family, Career, and Community Leaders of America (FCCCLA)* is the student organization for FACS and is an integral part of the curriculum that enhances leadership development skills and provides opportunities for community service.

**510004 Family and Consumer Sciences**

Fee: $25 1 semester (blocked for 2 periods), 1 credit
Prerequisite: None
Recommended for ninth and tenth grades

This course provides students with core knowledge and skills in the areas of marriage and family, parenting and care giving, consumer sciences, apparel, housing, food and nutrition, and technology. A school-based laboratory is required for this course.

**410012 Family Wellness**

Fee: $25 1 semester, ½ credit
Prerequisite: grades 10-12

This course is designed for students in grades 10 through 12. Family Wellness covers health issues that impact individuals, families, and communities. Course content provides opportunities for students to explore family health
through the stages of the life span. Topics include family health goals, health promotion, health risks, conflict resolution, communication skills needed in healthy relationships, mental health, grief, genetics, disease prevention, chronic illness, family nutrition, substance abuse, home safety, emergency care, first aid, consumerism, advocacy, technology, and careers related to individual and family health and wellness. Students may elect to substitute this course for one ½ unit of Health as required for graduation.

510033 Family Studies and Community Services I
Fee: $25 1 semester, 1 credit (blocked for 2 periods)
Prerequisite: Family & Consumer Sciences

This course is designed for students who are interested in acquiring skills for providing services to families and in preparing for a variety of careers related to family and human services.

510034 Family Studies and Community Services II
Fee: $25 1 semester, 1 credit (blocked for 2 periods)
Prerequisite: Family Studies and Community Services I

This course includes content that helps students learn ways to determine client needs through the use of assessments and to provide intervention services.

Military

480041 JROTC Leadership Education and Training (LET 1) (Central High School)

480051 Marine Corps JROTC Leadership Education (LE-I) (Paul W. Bryant High School)
Fee: none 2 semesters, 1 credit
Prerequisite: Senior Army Instructor (SAI) approval

NOTE: JROTC students may take only one LET level per academic school year.


480042 JROTC Leadership Education and Training Army (LET 2) (Central High School)

480052 JROTC Leadership Education and Training Marine Corps (LE-II) (Paul W. Bryant High School)

480043 JROTC Leadership Education and Training (LET 3) Army (Central High School)

480053 JROTC Leadership Education and Training Marine Corps Education (LE-III) (Paul W. Bryant High School)

480044 JROTC Leadership Education and Training (LET 4) Army (Central High School)

480054 JROTC Leadership Education (LE-IV) Marine Corps (Paul W. Bryant High School)
Fee: none 2 semesters, 1 credit
Prerequisite: previous JROTC LET course

480003 JROTC Advanced Leadership (LET V-VII) Army – Pilot (Central High School)
Fee: none 2 semesters, 1 credit
Prerequisites: Grade 11 and 12 students only; Completion of LET I and II

NOTE: JROTC students may take only one LET level per academic school year.

Subsequent JROTC courses continue learning and application of concepts and skills begun in JROTC LET 1. Students earn leadership positions based on their prior experiences.

802200aa Precision Drill Team
Fee: none 2 semesters, 1 credit
Prerequisites: Enrolled in JROTC; taking LET 1, 2, 3 or 4, and SAI approval (Offered at Central High School and Paul Bryant High School)

Precision Drill Team will teach JROTC students basic army drill and ceremony in accordance with army Field Manual 22-5 as well as precise fancy drill movements. Students will learn teamwork through the practice of team drill movements. The Precision Drill Team will perform during the year in local holiday events, parades, school demonstrations, and statewide competitions.
280001 Arts Survey  
Fee: none  
1 semester, ¼ credit  
Prerequisite: Only 2014-2015 juniors and seniors who have not OR will not take any other fine arts course can register for this class, which will fulfill diploma requirements.

This course comprehensively introduces students to the four arts disciplines – dance, music, theatre, and visual arts – and helps them develop an awareness of the contributions artists have made to society across the years.

280025 International Baccalaureate (IB)  
Music SL  
Fee: none  
2 semesters, 1 credit  
Prerequisite: Admission to the IB Programme (Offered at Central High School)

This course is designed for music students with varied backgrounds in music performance, either solo and/or group performers. The aim of the IB music program is to give students the opportunity to explore and enjoy the diversity of music throughout the world by enabling them to creatively develop their knowledge, abilities, and understanding through performance and composition. Students will be expected to demonstrate their understanding of music by performing solo and in a group, by using appropriate musical language and terminology in analyzing musical works from many and varied cultures and periods, and by exploring their own composition writing. Externally assessed listening and musical investigation will constitute fifty percent of the grade, and the internal assessment will be done by the teacher in the areas of performance and composition to fulfill the remaining fifty percent of the grade. All IB students must take this course in conjunction with one of the school's largest ensembles (band, orchestra, or choir). If a student is not a member of one of the ensembles, he/she needs to check with the IB Music teacher to make sure he/she has a method to fulfill the performance requirement of this IB Music course.

280031 Instrumental Level I/Beginning Band  
Fee: $25  
2 semesters, 1 credit  
Prerequisite: none

This course is for students with little or no prior band experience. Beginning Band is a skill course in which students learn basic techniques on a band instrument. The instrument is to be purchased by the parents.

280032 Instrumental Level I/Marching Band  
Fee: none  
1 semester (fall only), ½ credit  
Prerequisite: Band director's approval

This course will focus on the skills needed to perform in a marching band. This will include preparing for halftime shows, learning stand music, and preparing for parades. After-school rehearsals are required and performances are mandatory. Upon successful completion of the course, students may receive a fine arts credit.

280033 Instrumental Level II/Concert Band  
Fee: $25  
2 semesters, 1 credit  
Prerequisite: Audition and selection

Concert Band is an intermediate performing concert band through which students strengthen their performing skills. The concert band provides an opportunity for continuous development of basic musical skills through tone production, intonation, sight reading, and rhythms.

280035 Instrumental Level III/Symphonic Band  
Fee: $25  
2 semesters, 1 credit  
Prerequisite: Audition and selection

Symphonic Band is the advanced concert band. Symphonic Band is designed to meet the needs of those students who have demonstrated a high degree of instrumental proficiency. The purpose of this musical organization is for cultural enrichment and musical discipline.

280036 Instrumental Level III/Jazz Ensemble  
Fee: $25  
1 semester, ½ credit  
Prerequisite: Audition and selection

Participation in the Jazz Ensemble is designed to provide students with experience in performing music in the popular jazz and rock idioms in all representative styles. There are opportunities for solo playing, improvisation, and performance of creative student arrangements.

280037 Instrumental Level IV/Orchestra  
Fee: $25  
2 semesters, 1 credit  
Prerequisite: Audition and selection

Orchestra is a class formed to meet the needs of those students who have demonstrated a high degree of instrumental proficiency. This course not only accommodates wind and percussion instruments, but also stringed instruments such as violin, viola, cello, and double bass. The purpose of this musical organization is for cultural enrichment and musical discipline. This course may be taken for four years. Orchestra fulfills the graduation requirement for one credit of fine arts for the advanced academic or standard diploma. Students participating in orchestra have REQUIRED orchestra apparel, purchased by the student; assistance with apparel purchase is available based on a financial need basis.
280051 Vocal Level I
Fee: $25  2 semesters, 1 credit 
Prerequisite: None

Vocal Level I Chorus classes are designed for high school choral students with little or no prior experience in a vocal music program. Students will develop musical skills in sight-reading and vocal technique while exploring various styles of music from classical to contemporary music. Students may take this course in subsequent terms for additional elective credits. Students are required to purchase a uniform for performances.

280052 Vocal Level I/Mixed Chorus
Fee: $25  1 semester, ½ credit 
Prerequisite: None

Vocal Level I Chorus classes are designed for the high school choral student with little or no prior experience in a vocal music program. Students will develop musical skills in sight-reading and vocal technique while exploring various styles of music from classical to contemporary music.

280053 Vocal Level II
Fee: $25  2 semesters, 1 credit 
Prerequisite: Audition and selection

Level II Vocal Music is designed for students with at least one year of experience in a vocal music program. Sight-reading skill and vocal technique are strengthened, enabling students to sing and explore various styles of music and language. These singers will participate in district and state assessments, solo/ensemble competitions, All-State festivals, and community performances. Students are required to purchase a uniform for performances. At BHS and NHS, the course is Mixed Choir. At CHS, the course is Men's/Women's Chorus.

280055 Vocal Level III
Fee: $25  2 semesters, 1 credit 
Prerequisite: Audition and selection

Level III Vocal Music is designed to allow intermediate and advanced singers to apply prior knowledge as they continue to develop fundamental choral skills. These singers will participate in district and state assessments, solo/ensemble competitions, All-State festivals and/or community performances as determined by the instructor. Students are required to purchase a uniform for performances. At BHS and CHS, this course is Concert Choir. At NHS, this course is Musical Theater.

280057 Vocal Level IV
Fee: $25  2 semesters, 1 credit 
Prerequisite: Audition and selection

Level IV Vocal Music is designed for advanced singers to perform in a mixed chorus setting of SATB. This course strengthens the skills of those students who have demonstrated mastery of music fundamentals and vocal tone production. These singers will compete in district and state assessments, solo/ensemble competitions, All-State festivals and community performances. Students are required to purchase a uniform for these performances. At BHS, this course is Bryant Singers. At CHS, this course is Honors Ensemble. At NHS, this course is the Concert Choir.

280071 Theatre Level I/Introduction to Drama
Fee: $25  2 semesters, 1 credit 
Prerequisite: None

This course is designed for students with an interest in the dramatic arts. Students will work in all areas of theatre arts including, but not limited to, performance skills such as oral reading, improvisation, and character work, as well as theatre crafts such as masks, make-up, costumes, scenic work, and design skills.

280075 Musical Theatre
Fee: $25  2 semesters, 1 credit 
Prerequisite: Audition and selection

This course is performance-oriented and incorporates the study of musical theatre history, styles, performance, and technical production while also focusing on acting, directing, movement and mime, design, scriptwriting, singing, criticism, and aesthetics.

280076 Theatre Production/Level II
Fee: $25  2 semesters, 1 credit 
Prerequisite: Introduction to Drama

Theatre Production is a performance-based course that gives students the opportunity to experience the production process by assisting in the production of shows from a wide range of genres and styles. Students will act and/or serve on production crews for at least two shows each term. The types of shows may include children's theatre, radio theatre, Shakespearean theatre, reader's theatre, Oriental theatre, and musical theatre. This course may be taken more than once.

280077 Acting
Fee: $25  2 semesters, 1 credit 
Prerequisites: Audition/teacher recommendation/"C" or better in Intro to Theatre

Theatre performance focuses on the development of acting skills. Students will prepare and perform monologues, scenes, and plays for class and competition. Students will also be required to attend, read, and analyze plays. Critical reading skills and higher order thinking skills will be developed as a result of intense actor training. Students will be required to rehearse and perform outside of the regular class time.
280083 International Baccalaureate (IB) Film
Fee: $25  2 semesters, 1 credit
Prerequisites: Admission to the IB Programme and/or TCTA pending waiver approval from IB Programme
(Offered at Central High School)

This film course encourages students to develop the skills necessary to achieve creative and critical independence in their knowledge, experience, and enjoyment of film. Through the IB film course, students will develop an appreciation and understanding of the art of film making, the ability to plan stories and ideas for their own film productions, film production skills, critical evaluation of their own and others film productions, and an awareness of international film-making. Assessment in IB Film consists of an internal evaluation of a completed film project with associated documentation and a rationale, script and list of sources for a sort documentary production on film theory and/or history, and an external evaluation of an oral presentation of an extract from a prescribed film.

280090 Graphic Arts/Art and Design
Fee: $25  2 semesters, 1 credit
Prerequisite: Art 2

This course provides students with the opportunity to develop aesthetic, imaginative, and creative abilities. Students work toward an art display and/or an art journal, which exhibits extensive research of history, culture, style, media, techniques, composition, and the elements and principles of design.

280093 Art 1
Fee: $25  2 semesters, 1 credit
Prerequisite: None

This course will explore the fundamental concepts and approaches to drawing, painting, and design. Areas of study will include drawing with pencil, pen and ink, tempera painting, calligraphy, block printing, and ceramics.

280094 Art 2
Fee: $25  2 semesters, 1 credit
Prerequisite: Art 1 or teacher recommendation

This course will include an in-depth study of drawing in a variety of media, multicolor block printing, pottery and ceramic sculpture, and watercolor and acrylic painting with two and three-dimensional design.

280095 Art 3
Fee: $25  2 semesters, 1 credit
Prerequisite: Art 2 or teacher recommendation

This course is designed for students with exceptional interest and/or ability in art. This class will include an in-depth study of drawing in a variety of media, multicolor block printing, pottery, sculpture, and painting in a variety of media with two-dimensional and three-dimensional design. There will be written assignments as well as outside-of-class drawing.

280096 Art 4
Fee: $25  2 semesters, 1 credit
Prerequisite: Art 3 or teacher recommendation

This course is for students with exceptional interest and/or ability in art. Most of the class work is done on an individual basis. Each student does an in-depth study in one area: ceramics, design, drawing, or painting. There will be written assignments as well as outside-of-class drawing.

280102 Advanced Placement (AP) Art
Fee: $25  2 semesters, 1 credit
Prerequisite: Teacher recommendation

Advanced Placement (AP) Art is a course designed for juniors or seniors who are seriously interested in the practice of art. It offers the student the opportunity to pursue an intensive study of art according to guidelines established by the College Board. These guidelines attempt to establish an environment for the study of art that would closely approximate that of a freshman-level art course. Two avenues of study are open to the student: a concentration in drawing or a more general exploration of a variety of areas in art. At the end of the year the student will submit a portfolio of his/her work to an evaluation committee to be rated for possible college credit or college advanced placement. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

280098 3-D Art
Fee: $25  2 semesters, 1 credit
Prerequisite: None

3-D Art, also known as Ceramics I, is a beginning level course of study in which students will be introduced to the basic elements and principles of three-dimensional designs and be introduced to the creation of ceramic objects and the use of clay to produce art objects. Students will explore the use of clay to create ceramic containers, tiles, thrown pottery, and clay sculptures. Students will explore glaze formulation using non-toxic raw materials.

280105 International Baccalaureate (IB) Visual Arts SL
Fee: $25  2 semesters, 1 credit
Prerequisite: Admission to the IB Programme (Offered at Central High School)

This course is designed for students who wish to concentrate on studio performance in visual arts (Option A) or for students who wish to concentrate on contextual, visual, and critical investigation in visual arts (Option B). In Option A, students will produce investigation workbooks to support, inform, develop, and refine studio work through
sustained contextual, visual, and critical investigation. In Option B, students will fully explore an integrated range of ideas in their investigation workbooks within a contextual, visual, and critical framework, and produce studio work based on their visual and written investigation.

**280107 Visual Arts Elective**

Fee: $25  1 semester, ½ credit  
Prerequisite: 3-D Art

This Visual Arts Elective, also known as Ceramics II, is designed for students who are motivated to develop their skills previously experienced in Ceramics 1. Students are given an opportunity to design and complete ceramic assignments not explored in an entry level course. Some students may choose to work on the wheel for part of the semester. Work is evaluated on an individual basis.

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**Foreign Language**

**270023 French 1**

Fee: none  2 semesters, 1 credit  
Prerequisite: None

In French 1, students study the fundamentals of the French language, francophone countries, people, and their cultures. Students are introduced to the basic grammatical structures and to the vocabulary relevant to real-life situations while developing proficiency in listening, speaking, reading, and writing in French. Students will also explore the geography and customs of francophone countries.

**270024 French 2**

Fee: none  2 semesters, 1 credit  
Prerequisite: French 1

French 2 is a continuation of studies begun in French 1. It introduces intermediate grammatical structures, a broadened vocabulary, and expanded cultural concepts.

**270025 French 3**

Fee: none  2 semesters, 1 credit  
Prerequisite: French 2

French 3 offers the serious student a review and reinforcement of the skills and materials learned in French 1 and 2 as well as the introduction of advanced grammatical concepts and more complex vocabulary. Readings from French history and literature may be included.

**270026 French 4**

Fee: none  2 semesters, 1 credit  
Prerequisite: French 3

French 4 places emphasis on conversation and reading comprehension. The finer points of grammar are stressed. French 4 is based upon the assumption that the student has mastered all basic grammar concepts. The course offers the student strengthening and reinforcement in the speaking-listening skills and in reading comprehension.

**270033aa French 5**

Fee: none  2 semesters, 1 credit  
Prerequisite: French 4

French 5 offers further development and refinement of previously learned skills. Students will read a variety of texts, which will provide a basis for discussion of cultural themes.

**270027 Advanced Placement (AP) French**

Fee: $25  2 semesters, 1 credit  
Prerequisites: French 4 and teacher recommendation

Advanced Placement (AP) French will involve the reading and analysis of a variety of texts including French literature (short stories, plays, and poems) and informative articles (journalistic and textbook style). Through this intensive reading, students will have the opportunity to review grammar and communication skills. All of the language skills of listening, speaking, reading, and writing will be employed. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

**270043 German 1**

Fee: none  2 semesters, 1 credit  
Prerequisite: None

German 1 is an introduction to the basics of the German language. Students will develop competence in the four skills (listening, reading, speaking, and writing) so they will be able to communicate successfully in German. Students will be introduced to contemporary life and culture in the German-speaking countries.

**270044 German 2**

Fee: none  2 semesters, 1 credit  
Prerequisite: German 1

German 2 expands the communicative skills already acquired. Students will be able to talk about a variety of everyday occurrences and events. Students will learn to interact with others about various aspects of life: using various means of transportation, exchanging currency, and shopping in a variety of stores and markets. Students will increase cultural understanding by writing letters, describing German houses and apartments, major events, and festivals in small towns and large cities in Germany. Students will expand reading skills through specially chosen readings. These selections are shortened and simplified texts adapted from the works of well-known German authors.
270045 German 3
Fee: none 2 semesters, 1 credit
Prerequisite: German 2

German 3 builds on the skills developed in German 1 and 2. Extensive practice in conversation and grammar review is included. German 3 students will be introduced to German history, art, and literature. Students will read intermediate-level German novels and view German films. Students will expand their knowledge of German culture through reading and discussion. Class will be conducted almost exclusively in German with the expectation that the student will develop fluency in the language.

270046 German 4
Fee: none 2 semesters, 1 credit
Prerequisite: German 3

German 4 emphasizes conversation and reading comprehension. The finer points of grammar can be mastered as they occur within the reading material. German 4 is based upon the assumption that the student has mastered all basic grammar concepts. The course offers the student strengthening and reinforcement in the speaking-listening skills and in reading comprehension (not translation) skills.

270153 Spanish 1
Fee: none 2 semesters, 1 credit
Prerequisite: None

In Spanish 1, students are introduced to the basic grammatical structures and to the vocabulary and expressions relevant to real-life situations while developing proficiency in listening, reading, speaking, and writing. Throughout the course, explorations of the geography of Spanish-speaking countries, the people, and the customs serve to broaden students' views of the world and their places in it.

270154 Spanish 2
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 1

Spanish 2 offers a further study of the Spanish language, its structure, and vocabulary. It continues to acquaint the student with the culture and way of life of Hispanic people.

270155 Spanish 3
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 2

Spanish 3 concludes the study of the basic concepts of Spanish grammar and offers an in-depth study of the finer grammatical structures of the language. Stress is placed on using the language and improving conversational skills. Spanish literature is introduced.

270156 Spanish 4
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 3

Spanish 4 emphasizes conversation and reading comprehension. The finer points of grammar can be mastered as they occur within the reading material. Spanish 4 is based upon the assumption that the student has mastered all basic grammar concepts. The course offers the student strengthening and reinforcement in the speaking-listening skills and in reading comprehension (not translation) skills.

270160 Spanish 4, IB (International Baccalaureate)
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 3
(Offered at Central High School)

IB Spanish 4 emphasizes conversation and reading comprehension. The finer points of grammar can be mastered as they occur within the reading material. Spanish 4 is based upon the assumption that the student has mastered all basic grammar concepts. The course offers the student strengthening and reinforcement in the speaking-listening skills and in reading comprehension (not translation) skills. To earn IB credit, the student must be admitted to the IB Programme and must take the IB examination.

270164aa Spanish 5
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 4

Spanish 5 offers further development and refinement of previously learned skills. Students will read a variety of literary texts which will provide a basis for discussion of cultural themes.

270161 Spanish 5, IB (International Baccalaureate)
Fee: none 2 semesters, 1 credit
Prerequisite: Spanish 4
(Offered at Central High School)

IB Spanish 5 offers further development and refinement of previously learned skills. Students will read a variety of literary texts, which will provide a basis for discussion of cultural themes. To earn IB credit, the student must be admitted to the IB Programme and must take the IB examination.

270157 Advanced Placement (AP) Spanish
Fee: $25 2 semesters, 1 credit
Prerequisites: Spanish 4 and teacher recommendation

AP Spanish involves the reading and analysis of a variety of texts including Spanish literature (short stories, plays, and poems) and informative articles (journalistic and textbook style). Through this intensive reading, students will have the opportunity to review grammar and
communication skills. All of the language skills of listening, speaking, reading, and writing will be employed. Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

### Other General Electives

**802104 Study Hall**  
Fee: none  1 or 2 semesters, no credit  
Prerequisite: None

This course will offer students with time for supervised independent study. A variety of options for students can be provided.

**802200 Enrichment**  
Fee: none  1 semester, no credit  
Prerequisite: None

This course consists of any enhanced learning activities such as ACT Prep to prepare for the English, Math, Science, Reading, and Writing sections of the ACT. Other enrichment activities may include robotics, extension of labs, Scholars Bowl, bonus period activities, and others.

**600304 Transition Services 9**  
**600305 Transition Services 10**  
**600306 Transition Services 11**  
**600307 Transition Services 12**  
Fee: none  2 semesters, 1 credit  
Prerequisite: IEP team decision

These courses have previously been identified as the Introduction to the World of Work 1 and 2 in the Tuscaloosa City School system. These elective courses are designed to prepare students who are in need of career readiness skills. This course is available only to students who are working towards a graduation certificate and the IEPs require the course.

**600301 Transition Services I**  
**700041 Transition Services II**  
Fee: none  2 semesters, 1 credit  
Prerequisite: IEP team decision

These courses have previously been identified as Workforce Essentials in the Tuscaloosa City School system. These courses are designed to assist in the development of career and independent living skills through community-based instruction. This course is available only to students with IEPs requiring the course and for students who need to complete Cc-op requirements for the former Alabama Occupational Diploma (AOD).

**802105 Orientation**  
Fee: none, 1 semester, no credit  
Prerequisite: None

This course is designed to introduce students to school/classroom policies, procedures, and culture.

**802109 Hobbies**  
Fee: based on course, 1 semester, no credit  
Prerequisite: None

This course is designed to provide students with opportunities to explore a new interest in a supervised activity. Activities such as reading, creative writing, sport, computer games, chess, music, dance, foreign languages, and art that provide an extra intellectual challenge are all options for this course. This course can be used as a separate elective course or it can be scheduled during the bonus/flex period.

**802207 Peer Helper**  
Fee: none, 1 or 2 semesters, ¼ or 1 credit  
Prerequisites: Application and teacher selection based on completion of training required

This course is designed to provide students with supervised tutoring services offered by students who have completed a state-approved curriculum in peer tutoring strategies.

**802110 Club/Activity**  
Fee: based on course, 1 semester, no credit  
Prerequisite: None

This provides school-sponsored sessions, e.g., National Honor Society, SGA, Beta Club, Academic Team, Book Club, or others. This course can be used as a separate elective course, or it can be scheduled during the bonus/flex period.

**802106 Student Aide**  
Fee: none  1 semester, no credit  
Prerequisites: Application required

This course is designed for supervised student assistance such as teacher aide, office aide, guidance office aide, library aide, lab assistant, front office aide, etc.

**802202 School Publications**  
**802202aa Yearbook**  
**802202ab Newspaper**  
**802202ac Newsletter**  
Fee: $25  2 semesters, 1 credit  
Prerequisite: Application required

In this course, students will assist in production/maintenance of the following school publications: yearbook, newspaper or E-papers, website
maintain/updates, newsletter, or other noted school publications.

When requesting School Publications on the course selection form, you must specifically select the area of school publication from the above options.

**Physical Education**

**Athletics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Notes</th>
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<tbody>
<tr>
<td>802208aq</td>
<td>Fastpitch JV</td>
<td></td>
</tr>
<tr>
<td>802208ar</td>
<td>Baseball Varsity</td>
<td></td>
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<tr>
<td>802208as</td>
<td>Baseball JV</td>
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<tr>
<td>802208at</td>
<td>Girls Soccer Varsity</td>
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<tr>
<td>802208au</td>
<td>Girls Soccer JV</td>
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<tr>
<td>802208av</td>
<td>Boys Soccer Varsity</td>
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<tr>
<td>802208aw</td>
<td>Boys Soccer JV</td>
<td></td>
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<tr>
<td>802208ax</td>
<td>Girls Golf</td>
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<tr>
<td>802208ay</td>
<td>Boys Golf</td>
<td></td>
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<tr>
<td>802208az</td>
<td>Girls Tennis</td>
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<tr>
<td>802208ba</td>
<td>Boys Tennis</td>
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</tbody>
</table>

**Physical Education Elective**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>240002</td>
<td>Lifelong Individualized Fitness, LIFE</td>
<td>Fee: none 2 semesters, 1 credit Prerequisite: None</td>
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</tbody>
</table>

Lifelong Individualized Fitness Education (LIFE) is the required foundation course for all high school students. The goal of the LIFE course is for students to make physical activity a part of their lives beyond high school. The focus of the required high school physical education course is health-enhancing activity. LIFE provides a blueprint for a lifetime of health living. Students learn to apply various aspects of fitness and to assess their own fitness levels. Students are required to develop and maintain an individual level of fitness that forms the foundation for a healthy future. This is a required course for graduation.

**Physical Education Elective**

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<tr>
<th>Course Code</th>
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<th>Notes</th>
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<tbody>
<tr>
<td>240003</td>
<td>Physical Education Elective</td>
<td>Fee: Based on course 2 semesters, 1 credit Prerequisite: LIFE PE</td>
</tr>
</tbody>
</table>

This course is designed for those students who have completed the LIFE physical education and wish to continue to take a physical education class. Team activities offered in this class include football, basketball, soccer, tennis, softball, and other team oriented activities. Students will be offered opportunities to compete in intramural activities in the various sports. All athletic courses are provided through this elective option. Placement in an athletic sport is made only after try-outs and selection procedures are completed. Approval from the appropriate coach is required for registration in each sport.

**OTHER ACADEMIC INFORMATION**

**Dual Enrollment/Dual Credit (DE/DC):**
The Alabama State Board of Education has authorized the establishment of dual enrollment programs between public colleges and universities and local boards of education. Eligible students may enroll in post-secondary institutions in order to dually earn credits for a high school diploma and/or a post-secondary degree. The following options may be offered in dual enrollment: 1) Students may earn college credit (dual enrollment) or 2) Students may earn both high school and college credits for the same course (dual enrollment/dual credit). Dual enrollment/dual credit (DE/DC) allows eligible high school students to enroll in college courses and receive both high school and college credit. Students will receive ½ Carnegie Unit for successful completion of a semester college course. Ten quarter/six semester credit hours at the post-secondary level shall equal one credit at the high school level in the related subject. For example, a senior may take English 101 and 102 to receive 6 hours of college credit and concurrently receive 1 high school Carnegie Unit for English. DE/DC courses are taught at the college level and graded at the college level. Students participating in DE/DC courses are required to follow college procedures and complete required college forms and applications, along with the Tuscaloosa City Schools policies and Student Handbook. High school guidance counselors have dual enrollment
application forms and can assist with the enrollment process or answer any questions you may have. For additional questions about DE/DC, contact the Assistant Superintendent of Curriculum and Instruction office at (205) 759-3510. A course passed as dual enrollment/dual credit counts as college credit and high school credit. Six college credit hours equal one credit at the high school level in the same or a related subject. Weighted credit is awarded for dual enrollment courses (see Grade Point Average Scale chart).

Students will receive 1.0 extra quality point for successful completion of each DE/DC course.

To qualify for DE/DC, a student must meet the following criteria:

1. Meet entrance requirements established by institutions of post-secondary education.
2. Maintain a "B" average in high school classes.
3. Have local school administration, counselor, and parent/guardian permission.
4. Be enrolled in grades 11 or 12, or have an exception granted by the participating post-secondary institution upon the recommendation of the student's administration and superintendent or his designate and in accordance with Alabama Administrative Code 290-8-9-17 regarding gifted and talented students.
5. Be responsible for all travel to an off-campus site. Parents/guardians will be required to give permission for student to check out. Student will be required to follow regular check out procedures each day. Any other circumstances must be approved by the local school administrator and superintendent or his designee.
6. Be responsible for all costs associated with student transportation, including insurance, etc. to the off-campus site.
7. Understand that the college or school system assumes no responsibility or liability for students during the times they are commuting to the DE/DC site.

Typical Course Offerings

DUAL CREDIT ONLINE COURSE OPTIONS

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>UA Core Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT100</td>
<td>Intro to Anthropology&lt;br&gt;Intro to Cultural Anthropology</td>
<td>SB</td>
</tr>
<tr>
<td>ANT102</td>
<td></td>
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<tr>
<td>ARH 252</td>
<td>Survey of Art History I&lt;br&gt;(Prehistoric to Medieval)</td>
<td>FA</td>
</tr>
<tr>
<td>ARH 253</td>
<td>Survey of Art History II&lt;br&gt;(Renaissance to Modern)</td>
<td></td>
</tr>
<tr>
<td>BSC 108</td>
<td>Biology for Non-Majors&lt;br&gt;(cellular)</td>
<td>N</td>
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<tr>
<td>BSC 109</td>
<td>Biology for Non-Majors</td>
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CONTACT INFORMATION
www.uaearlycollege.ua.edu
Email to earlycollege@ua.edu or 1-877-823-8759

TYPICAL UA EARLY COLLEGE COURSES
Courses are offered Online and/or On-Campus

Humanities HU – 3 hours
- JN 200 Intro to Journalism
- PHL 204 Medical Ethics
- AMS 205 Working Live
- CIP 200 Intro to Global Studies
- REL 100 Intro to World Religions
- PHL 100/200 Intro to Philosophy
- COM 122 Critical Decision Making
- COM 123 Public Speaking

Social & Behavioral Science SB – 6-9 hours
- ANT 100 Intro to Anthropology
- ANT 102 Cultural Anthropology
- HD 101 Human Development
- EG 110-111 Economics
- GY 110 Prin. Human Geography
- PY 101 Psychology
- SOC 101 Sociology
- PSC 101/103 American Politics

Nat. Science N – 8 hours
- BSC 108/109 Biology Non-Majors
AY 101 Astronomy (on campus w/labs)
BSC 114/116 Biology for Majors
CH 101/102 Chemistry
CH 104/105 Chemistry
GEO 101 Dynamic Earth

**Fine Arts FA – 3 hours**
ARH 252 Survey of Art I
ARH 253 Survey of Art II
FA 200 Intro to Fine Arts
TH 114 Intro to the Theatre
NEW 212 Creativity
MUS 121 Intro to Listening

**Math MA – 3+ hours**
MATH 101 Finite Math
MATH 112 Precalculus Algebra
MATH 113 Precalculus Trigonometry
MATH 115 Precal Algebra & Trig
MATH 121 Calculus for Business

*Placement test required*

**Composition FC – 6 hours**
EN 101 Freshman Composition I
EN 102 Freshman Composition II

**Literature L – 3-6 hours (see below)**
EN 101/102 Is prerequisite to Literature
EN 209 American Literature I
EN 210 American Literature II

**History HY – 3-6 hours**
HY 101 Western Civilization to 1648
HY 102 Western Civilization s/1648
HY 203 American Civilization to 1865
HY 204 American Civilization s/1865

UA requires either a series of 2 History courses and 1 Literature OR series of 2 Literature courses and 1 History.
Requirements may be different at other institutions

**Computer Science C – 6 hours (see below)**
CS 102 Microcomputer Apps.*
  (prerequisite for all CS courses)
CS 202 Information Highway
  (prerequisite for all CS 205)
CS 205 Website Design
CS 285 Microcomputer Apps II

**Language FL – 8 hours**
ARB 101/102 Arabic
CHI 101/102 Chinese
FR 101/102 French
GN 101/102 German
JA 101/102 Japanese
SP 101/102 Spanish

UA requires either 2 terms (6 credit hours) of Computer Science beyond CS 102 OR 2 terms (8 credit hours) of foreign Language. Requirements may be different at other institutions

<table>
<thead>
<tr>
<th>Elective Courses</th>
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<tbody>
<tr>
<td>HES 275</td>
</tr>
<tr>
<td>NHM 101</td>
</tr>
<tr>
<td>CJ 101</td>
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<tr>
<td>HHE 270</td>
</tr>
</tbody>
</table>

*Specific offerings vary by term. Call 1-877-823-8759 for specific list

**Advanced Placement** The Advanced Placement Program (AP) is an academic program of college-level courses and exams for high school students and provides students with the opportunity to earn college credit or placement, while still in high school. The curriculum of an AP course is challenging and goes into greater depth with the academic material than regular courses. AP courses require students to use analytical thinking, reading, writing, and problem solving skills. AP courses are taught using college level materials and teaching strategies. All students enrolled in Advanced Placement courses are required to take the AP Exam or complete an art portfolio for AP art only. Students should meet the following criteria to enroll in AP courses:

1. Be advised during the 4-year planning process with district and local school personnel based on current test scores, career interest inventory, college and career plans, and other areas as determined by district personnel.
2. Complete all prerequisite courses.
3. Should have an above-average GPA with “B’s” or better in core academic subjects in the area of the AP subject.
4. Should have EXPLORE and/or PLAN scores to indicate student is prepared for rigor required.
5. Should be highly-motivated and have good study habits.
6. Should have consent of parent/guardian (signature on the 4 year plan).
7. Must take AP exam at the end of the year.

More information about the AP Program is available at AP Central, the College Board’s online home for AP professionals.

Students will receive 1.0 extra quality point for successful completion of the course and the completion of the AP examination.

The AP courses scheduled at each high school depend upon the demand. If a student is interested in an AP course that is not offered on site, the student or parent should contact the local school counselor to discuss other options.

**Honors Courses**
Honors courses are offered at each high school and include rigorous content, along with Pre-AP materials and methodology. These courses also provide students with the academic skills and habits of mind needed to be successful in challenging Advanced Placement courses.
International Baccalaureate Programme (IB)

The IB Programme supports the development of effective and rewarding learning communities through service and professional networks focused on best practices in education. The objectives of the IB Programme are to provide pupils with a balanced education, to facilitate geographic and cultural mobility, and to promote international understanding through a shared academic experience. Students who participate in the full diploma program pursue a specific, intensive, balanced liberal arts course of study which includes a critical thinking class, a minimum of 150 hours of participation in extracurricular activities and community services, and a research paper. Students also must pass rigorous examinations in seven curricula areas.

Although students may be admitted to the IB Programme at the beginning of the eleventh grade, the sequence of foreign language courses needed to earn the IB diploma requires participation in foreign language courses in grades 9 and 10.

Grade Point Average (GPA) Scale

Students electing to participate in rigorous academic courses such as Honors, Advanced Placement, Dual Enrollment, and IB Programmes are given additional weight. The weighted Grade Point Average (GPA) will be recorded on the students' report card, high school official transcript, and included in the students' overall GPA calculation. Secondary credit grades shall be awarded according to the following scales:

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<th>Honors</th>
<th>AP, IB, DE/DC</th>
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Distance Learning Education Courses (ACCESS)

The Tuscaloosa City Schools offers distance learning courses to all qualifying students in grades 9-12. Courses under this program along with the state's Alabama Connecting Classrooms, Educators and Students Statewide (ACCESS Distance Learning) provide the opportunity for students with difficult schedules to take courses that would otherwise be unavailable. All courses currently approved for the Secondary Academic Guide may be optionally offered to qualifying students pending the availability of trained online facilitators and the appropriate distance education equipment. Class size regulations are the same as for courses not taught through distance learning.

Correspondence/Online/Independent Study

Students in grades 9-12 may be approved to take correspondence or independent study and/or online courses for credit(s) offered through institutions recognized by the State Department of Education or from institutions accredited by a national accrediting agency recognized by the U.S. Office of Education. The school principal must grant prior written approval for each correspondence/independent/online study course. No more than one-fourth of the total units required for graduation may be taken by correspondence/online/independent study.

Credit Recovery

Credit Recovery is a course-specific, standards-based extended learning opportunity for students who have been unsuccessful in mastering content or skills required to receive course credit or earn promotion. Credit Recovery study is based on deficiencies rather than a repeat of the entire course. Students who have not achieved a baseline score of 40 or above (on a 100-point scale) must repeat the entire course. Past credit recovery has been completed on PLATO software; however, beginning in 2013, students will use the A+ AnyWhere Learning system to regain credits.

The A+ AnyWhere Learning system courseware incorporates a standards-based and self-paced approach to learning. The A+ AnyWhere Learning program is a scientific research-based learning instructional program. It consists of core curriculum content supported by an extensive instructional management system. The content addresses reading, writing, mathematics, science, and social sciences for first through twelfth grades containing over 6,000 lessons with over 100,000 exercises, and representing over 6,700 hours of instruction. The content is focused on essential skills using proven teaching methods, human voice, and engaging graphic support. The emphasis is on clear, focused instruction with extensive, frequent feedback containing review and re-teaching when necessary. The presentation is always concise and direct with carefully planned sequences of lessons to assure mastery of content. These design principles are based on scientific research and are the basis for the instructional program.

Student Eligibility Admission and Removal

a. Student must be in high school.
b. Student must have consent from parent or guardian.
c. Student must be recommended by principal/counselor/Tuscaloosa City Schools' curriculum team representative or local school advisory committee representative.
d. Student must be working toward one of the approved diploma options.
e. Student must have earned a minimum numerical score of 40 in the course enrolled.

Grades

a. Under the Credit Recovery Program adopted by the Tuscaloosa City Schools, a maximum grade of "C" (70) will be earned after successful completion of the Credit Recovery course(s).
b. A minimum grade of 80% on all course work completed in the program, as well as the computer generated end-of-course assessment
on skill specific goals, is required for credit recovery.

c. The final credit recovery grade, as well as the original failing grade, will be included when computing the students' overall GPA. The original failing grade must remain on the transcript.

Credits
Credit Recovery courses in which students have completed will be included in calculating the total credits for the school year.

PARTICIPATION IN EXTRACURRICULAR ACTIVITIES "Academics First"

The Tuscaloosa City Board of Education recognizes the value of athletics and other extracurricular activities as they relate to the total education of students. The Tuscaloosa City Board of Education also recognizes and supports high academic standards and the necessity of developing a framework to annually assess each athletic and extracurricular student's progress toward graduating from high school on schedule with his/her class.

For purposes of definition, athletic events are defined as those recognized and sanctioned by the Alabama High School Athletic Association. Extracurricular activities are defined as those in which a student represents his/her school.

The Tuscaloosa City Board of Education prescribes the following regulations for eligibility by students in this school system to participate in athletics and/or extracurricular activities:

1. Each student entering grades 10-12 must, for the immediate preceding school year, have a total numerical average of 70, (including any four (4) core courses) and earn the appropriate number of credits in each of six (6) subjects that total six (6) Carnegie units of credit.

2. Physical education may count as only one (1) unit per year.

3. Eligibility shall be determined on the first day of the school year and shall remain in effect for one (1) complete school year. Students deemed ineligible at the beginning of the school year by virtue of having failed to meet the requirements outlined in parts 1-2 above, may regain their eligibility at the end of the first semester by meeting the requirements for eligibility in the two most recently completed semester, including summer school. Eligibility restoration must be determined no later than five (5) school days after the beginning of the succeeding semester. An ineligible student may not become eligible after the fifth school day of each semester. Bona fide transfers will comply according to rules of the Alabama High School Athletic Association for sports and policies developed by this Board of Education as it pertains to extracurricular activities.

4. Each eligible student must meet the definition of a regular student as defined by the Alabama High School Athletic Association.

5. All students entering grades 8 and 9 must pass five (5) subjects with a total composite numerical average of 70 for those five (5) subjects during their preceding two terms of attendance. (Core courses are not required.)

NCAA ELIGIBILITY INFORMATION

Sources:


The initial-eligibility standards for NCAA Division I college-bound student-athletes are changing. College-bound student-athletes first entering a Division I college or university on or after August 1, 2016, will need to meet new academic rules in order to receive athletics aid (scholarship), practice or compete during their first year.

Key Terms

1. Full Qualifier: A college-bound student-athlete may receive athletics aid (scholarship), practice, and compete in the first year of enrollment at the Division I college or university.

2. Academic Redshirt: A college-bound student-athlete may receive athletics aid (scholarship) in the first year of enrollment and may practice in the first regular academic term (semester or quarter) but may NOT compete in the first year of enrollment. After the first term is complete, the college-bound student-athlete must be academically successful at his/her college or university to continue to practice for the rest of the year.

New Requirements

1. Full Qualifier:
   a. Complete 16 core courses (same distribution as in the past)
   b. Ten of the 16 core courses must be completed before the seventh semester (senior year) of high school.
   c. Seven of the 10 core courses must be English, math, or science.
   d. Have a minimum core-course GPA of 2.300; Note: Grades earned in the 10 required courses required before the senior year are "locked in" for purposes of GPA calculation.
   e. A repeat of one of the "locked in" courses will not be used to improve the GPA if taken after the seventh semester begins.
   f. Meet the competition sliding scale requirement of GPA and ACT/SAT score (this is a new scale with increased GPA/test score requirements); and
   g. Graduate from high school.

2. Academic Redshirt must:
   a. Complete 16 core courses (same distribution as in the past)
   b. Have a minimum core-course GPA of 2.000;
   c. Meet the academic redshirt sliding scale requirement of GPA and ACT/SAT score; and
   d. Graduate from high school.

3. Nonqualifier is a college-bound student-athlete who fails to meet the standards for a qualifier or for an academic redshirt.

Examples:

Q: A college-bound student-athlete completes 15 core courses with a 2.500 core-course GPA and an 820 SAT score (critical reading and math). What is the college-bound student-athlete’s NCAA initial-eligibility status?
A: The college-bound student-athlete is a nonqualifier because only 15 core courses were completed, not the required 16 core courses.

Q: A college-bound student-athlete completes 16 core courses in the required framework with a 2.500 core-course GPA and a 68 sum ACT. What is the college-bound student-athlete’s initial-eligibility status?
A: The college-bound student-athlete is an academic redshirt. Under the new competition scale, a 68 sum ACT score requires a 2.950 core-course GPA.

Core Courses

- NCAA Division I requires 16 core courses. NCAA Division II currently requires 14 core courses. Division II will require 16 core courses for students enrolling on or after August 1, 2013. See the charts below.
- NCAA Division I will require 10 core courses to be completed prior to the seventh semester (seven of the 10 must be a combination of English, math, or natural or physical science that meet the distribution requirements below). These 10 courses become "locked in" at the seventh semester and cannot be retaken for grade improvement.
- Beginning August 1, 2016, it will be possible for a Division I college-bound student-athlete to still receive athletics aid and the ability to practice with the team if he or she fails to meet the 10 course requirement, but would not be able to compete.

Test Scores

- Division I uses a sliding scale to match test scores and core grade-point averages (GPA). The sliding scale for those requirements is shown at the end of this section.
- Division II requires a minimum SAT score of 820 or an ACT sum score of 68.
- The SAT score used for NCAA purposes includes only the critical reading and math sections. The writing section of the SAT is not used.
- The ACT score used for NCAA purposes is a sum of the following four sections: English, mathematics, reading, and science.
- When you register for the SAT or ACT, use the NCAA Eligibility Center code of 9999 to ensure all SAT and ACT scores are reported directly to the NCAA Eligibility Center from the testing agency. Test scores that appear on transcripts will not be used.

Grade-Point Average

- Be sure to look at your high school's List of NCAA Courses on the NCAA Eligibility Center's website (www.eligibilitycenter.org). Only courses that appear on your school's List of NCAA Courses will be used in the calculation of the core GPA. Use the list as a guide.
- Division I students enrolling full time before August 1, 2016, should use Sliding Scale A to determine eligibility to receive athletics aid, practice and competition during the first year only.
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### Sliding Scale A
Use for Division I prior to August 1, 2016

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IN CASE OF AN EMERGENCY...

By ensuring that your contact information is up-to-date, it makes it easier for the school system to contact you in the event of an emergency.

Experience tells us that one form of communication may not be enough during a severe weather event, especially if telecommunications systems are impacted. That's why we publish information in multiple locations: on the system’s website, through our social media channels and in the local media.

Additionally, we use your phone number on file to inform you of any changes to the school as the result of a weather event or other emergency.

TO UPDATE YOUR CONTACT INFORMATION, TALK TO YOUR CHILD’S SCHOOL SECRETARY.

TUSCALOOSA CITY SCHOOLS

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