

***U.S. Department of Education***  
***2020 National Blue Ribbon Schools Program***

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[X] Public or [ ] Non-public

For Public Schools only: (Check all that apply) [ ] Title I      [ ] Charter      [X] Magnet [ ] Choice

Name of Principal Ms. Sheila Roby

(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name New Century Technology High School

(As it should appear in the official records)

School Mailing Address 2500 Meridian Street N

(If address is P.O. Box, also include street address.)

City Huntsville      State AL      Zip Code+4 (9 digits total) 35811-1842

County Madison

Telephone (256) 428-7800

Fax (256) 428-7801

Web site/URL

<https://www.huntsvillecityschools.org/schools/new-century-technology-high-school>

E-mail sheila.roby@hsv-k12.org

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify, to the best of my knowledge, that it is accurate.

Date \_\_\_\_\_

(Principal's Signature)

Name of Superintendent\* Mrs. Christie Finley      E-mail christie.finley@hsv-k12.org  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name Huntsville City Schools      Tel. (256) 428-6800

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify, to the best of my knowledge, that it is accurate.

Date \_\_\_\_\_

(Superintendent's Signature)

Name of School Board

President/Chairperson Ms. Elisa Ferrell

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application, including the eligibility requirements on page 2 (Part I-Eligibility Certification), and certify, to the best of my knowledge, that it is accurate.

Date \_\_\_\_\_

(School Board President's/Chairperson's Signature)

The original signed cover sheet only should be converted to a PDF file and uploaded via the online portal.

\*Non-public Schools: If the information requested is not applicable, write N/A in the space.

## **PART I – ELIGIBILITY CERTIFICATION**

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The signatures on the first page of this application (cover page) certify that each of the statements below, concerning the school's eligibility and compliance with U.S. Department of Education and National Blue Ribbon Schools requirements, are true and correct.

1. All nominated public schools must meet the state's performance targets in reading (or English language arts) and mathematics and other academic indicators (i.e., attendance rate and graduation rate), for the all students group, including having participation rates of at least 95 percent using the most recent accountability results available for nomination.
2. To meet final eligibility, all nominated public schools must be certified by states prior to September 2020 in order to meet all eligibility requirements. Any status appeals must be resolved at least two weeks before the awards ceremony for the school to receive the award.
3. The school configuration includes one or more of grades K-12. Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.
4. The school has been in existence for five full years, that is, from at least September 2014 and each tested grade must have been part of the school for the past three years.
5. The nominated school has not received the National Blue Ribbon Schools award in the past five years: 2015, 2016, 2017, 2018, or 2019.
6. The nominated school has no history of testing irregularities, nor have charges of irregularities been brought against the school at the time of nomination. If irregularities are later discovered and proven by the state, the U.S. Department of Education reserves the right to disqualify a school's application and/or rescind a school's award.
7. The nominated school has not been identified by the state as "persistently dangerous" within the last two years.
8. The nominated school or district is not refusing Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district-wide compliance review.
9. The OCR has not issued a violation letter of findings to the school district concluding that the nominated school or the district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan from the district to remedy the violation.
10. The U.S. Department of Justice does not have a pending suit alleging that the nominated school or the school district, as a whole, has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
11. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the school or school district in question; or if there are such findings, the state or district has corrected, or agreed to correct, the findings.

## PART II - DEMOGRAPHIC DATA

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**Data should be provided for the most recent school year (2019-2020) unless otherwise stated.**

**DISTRICT** (Question 1 is not applicable to non-public schools)

1. Number of schools in the district  
(per district designation):  
26 Elementary schools (includes K-8)  
11 Middle/Junior high schools  
6 High schools  
0 K-12 schools

43 TOTAL

**SCHOOL** (To be completed by all schools)

2. Category that best describes the area where the school is located. If unsure, refer to NCES database for correct category: <https://nces.ed.gov/ccd/schoolsearch/> (Find your school and check “Locale”)

[X] Urban (city or town)

[ ] Suburban

[ ] Rural

3. Number of students as of October 1, 2019 enrolled at each grade level or its equivalent at the school:

Grade	# of Males	# of Females	Grade Total
<b>PreK</b>	0	0	0
<b>K</b>	0	0	0
<b>1</b>	0	0	0
<b>2</b>	0	0	0
<b>3</b>	0	0	0
<b>4</b>	0	0	0
<b>5</b>	0	0	0
<b>6</b>	0	0	0
<b>7</b>	0	0	0
<b>8</b>	0	0	0
<b>9</b>	55	67	122
<b>10</b>	54	55	109
<b>11</b>	61	60	121
<b>12 or higher</b>	50	53	103
<b>Total Students</b>	220	235	455

\*Schools that house PreK programs should count preschool students **only** if the school administration is responsible for the program.

4. Racial/ethnic composition of the school (if unknown, estimate):
- |  |
|--|
| <u>0.2</u> % American Indian or Alaska Native          |
| <u>4.4</u> % Asian                                     |
| <u>32.5</u> % Black or African American                |
| <u>10.1</u> % Hispanic or Latino                       |
| <u>1.1</u> % Native Hawaiian or Other Pacific Islander |
| <u>46.6</u> % White                                    |
| <u>5.1</u> % Two or more races                         |
| <b>100 % Total</b>                                     |

(Only these seven standard categories should be used to report the racial/ethnic composition of your school. The Final Guidance on Maintaining, Collecting, and Reporting Racial and Ethnic Data to the U.S. Department of Education published in the October 19, 2007 *Federal Register* provides definitions for each of the seven categories.)

5. Student turnover, or mobility rate, during the 2018 - 2019 school year: 3%

If the mobility rate is above 15%, please explain:

This rate should be calculated using the grid below. The answer to (6) is the mobility rate.

Steps For Determining Mobility Rate	Answer
(1) Number of students who transferred <i>to</i> the school after October 1, 2018 until the end of the 2018-2019 school year	0
(2) Number of students who transferred <i>from</i> the school after October 1, 2018 until the end of the 2018-2019 school year	16
(3) Total of all transferred students [sum of rows (1) and (2)]	16
(4) Total number of students in the school as of October 1, 2018	473
(5) Total transferred students in row (3) divided by total students in row (4)	0.03
(6) Amount in row (5) multiplied by 100	3

6. Specify each non-English language represented in the school (separate languages by commas):

Achi, Chinese, German, Hindi, Lao, Nepali, Russian, Spanish, Thai, Turkish, Urdu

English Language Learners (ELL) in the school: 5 %

21 Total number ELL

7. Students eligible for free/reduced-priced meals: 16 %

Total number students who qualify: 71

8. Students receiving special education services: 3 %  
12 Total number of students served  
Indicate below the number of students with disabilities according to conditions designated in the Individuals with Disabilities Education Act. Do not add additional conditions. It is possible that students may be classified in more than one condition.

<u>10</u> Autism	<u>0</u> Multiple Disabilities
<u>0</u> Deafness	<u>0</u> Orthopedic Impairment
<u>0</u> Deaf-Blindness	<u>1</u> Other Health Impaired
<u>0</u> Developmental Delay	<u>1</u> Specific Learning Disability
<u>0</u> Emotional Disturbance	<u>0</u> Speech or Language Impairment
<u>0</u> Hearing Impairment	<u>0</u> Traumatic Brain Injury
<u>0</u> Intellectual Disability	<u>0</u> Visual Impairment Including Blindness

9. Number of years the principal has been in her/his position at this school: 5
10. Use Full-Time Equivalents (FTEs), rounded to the nearest whole numeral, to indicate the number of school staff in each of the categories below:

	<b>Number of Staff</b>
Administrators	2
Classroom teachers, including those teaching high school specialty subjects, e.g., third grade teacher, history teacher, algebra teacher.	26
Resource teachers/specialists/coaches e.g., reading specialist, science coach, special education teacher, technology specialist, art teacher etc.	2
Paraprofessionals under the supervision of a professional supporting single, group, or classroom students.	1
Student support personnel e.g., school counselors, behavior interventionists, mental/physical health service providers, psychologists, family engagement liaisons, career/college attainment coaches, etc.	2

11. Average student-classroom teacher ratio, that is, the number of students in the school divided by the FTE of classroom teachers, e.g., 22:1      17:1

12. Show daily student attendance rates. Only high schools need to supply yearly graduation rates.

Required Information	2018-2019	2017-2018	2016-2017	2015-2016	2014-2015
Daily student attendance	96%	96%	96%	96%	96%
High school graduation rate	100%	98%	98%	99%	95%

13. **For high schools only, that is, schools ending in grade 12 or higher.**

Show percentages to indicate the post-secondary status of students who graduated in Spring 2019.

Post-Secondary Status	
Graduating class size	105
Enrolled in a 4-year college or university	68%
Enrolled in a community college	23%
Enrolled in career/technical training program	0%
Found employment	2%
Joined the military or other public service	2%
Other	5%

14. Indicate whether your school has previously received a National Blue Ribbon Schools award.

Yes \_ No X

If yes, select the year in which your school received the award.

15. In a couple of sentences, provide the school's mission or vision statement.

The mission of New Century Technology High School is to immerse motivated, highly-capable students in advanced studies and industry experience in the fields of computer science, engineering, and biomedical science.

16. **For public schools only**, if the school is a magnet, charter, or choice school, explain how students are chosen to attend.

All interested students are encouraged to apply to New Century during one of three application periods. The fall application period begins in late October, the spring application period begins in March, and the summer application period begins in July. The entire freshman class and any available seats anticipated in grades ten through twelve are open in the fall and the other two applications periods are just opened for grades with available seats. An online application is submitted for each interested student. Students applying to New Century must have a current average of 80% or above across their core subjects. Current Huntsville City Schools' students previous yearly grades are provided in the application through the district's grading platform system and students who will be new to the district must submit transcripts for the previous school year. All applicants are then invited to complete the essay portion of the application. Once the essays have been submitted, a diverse committee consisting of one district representative, one school administrator, and one other school faculty member score the applications using a rubric which takes into consideration all elements of the application (previous year grades and the composite essay score). The results are entered in a software program which runs a lottery to select students for the following school year.

## PART III - SUMMARY

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Huntsville, Alabama gained national recognition in the 1960s when a German rocket team relocated to the city and designed the Saturn V rocket that sent Apollo astronauts to the moon. Huntsville's Redstone Arsenal is now home to NASA Marshall Space Flight Center, U.S. Army Aviation and Missile Command, and the FBI Terrorist Explosive Device Analytical Center. Other major companies with offices in the Huntsville area include Mazda Toyota Manufacturing USA, Facebook Data Center, Blue Origin, HudsonAlpha Institute for Biotechnology, and The Boeing Company.

One of the country's highest per capita concentrations of engineers can be found in the Huntsville area, as well as the third highest computer, science, and technology worker concentration. Huntsville is experiencing rapid growth due to the strong presence of aerospace, technology, and defense industries with a 20% increase in employment between 2003 and 2018. People come from throughout the country and the world for career opportunities. The Huntsville metro area is home to one of the most educated populations in the state with 37 percent of residents having earned four-year degrees.

In 1997, Huntsville City Schools recognized the growing need for a workforce with advanced technology skills and created New Century Technology High School (NCTHS) to help prepare young people for Science, Technology, Engineering, and Mathematics (STEM) careers. Originally a half-day school with students coming from all the district's other high schools, New Century provided students with the opportunity to learn advanced skills needed to complete tasks for local businesses and present their final products to professionals from the companies and the school district. In 2000, New Century became a full-time high school accepting students from all over the district and providing advanced course work and real-world experience in technical areas. In the early years, students focused on specific technical projects provided by local companies. As the years progressed, the courses and projects became more focused on specific fields.

Today, the mission of New Century is to immerse motivated, highly capable students in advanced studies and industry experience in the fields of computer science, engineering, and biomedical science. All students engage in focused and applied curriculum in their selected field of study. New Century pairs standard courses with unique courses designed to provide experience and insight into ever-changing STEM fields.

After selecting a strand of study, students take two classes in that strand each year. Project Lead the Way Biomedical Science and Engineering courses, Southern Regional Education Board's Aerospace courses, and Advanced Placement computer science courses provide the basis for study in each of the three strands. Unique courses are also identified and created with assistance from the school's Advisory Committee. These unique courses currently include Genetics and Bioinformatics in the Biomedical Science strand, Python Plus and Data Structures in the Computer Science strand, and Robotics and Applied Engineering in the Engineering strand. Students strive to be strand completers by passing at least eight courses in one strand. By the senior year, students have the opportunity to apply for internships with local industries and get hands-on experience in their chosen field.

Many students come to New Century highly motivated and willing to work to achieve their goals. It becomes the school's role to provide rigorous and challenging courses that prepare the students for their future college and careers. Those who do not already come to the school motivated and with set plans are allowed to explore the three strands of study to help narrow their area of interest prior to entering college. A variety of courses are available in each strand to allow students to explore not only among the strands but also within each strand. Biomedical Science provides courses geared toward clinical work as well as research opportunities. Computer Science courses focus on programming and/or cyber security. Engineering offers opportunities in aerospace engineering, civil engineering, welding, robotics, and advanced manufacturing.

New Century faculty and staff also understand the importance of addressing students' mental health. When students enroll at New Century, they are assigned an advisory teacher and remain with the same advisory group as long as they attend the school. Developing a relationship with the advisory teacher gives each

student another adult in the building who can advocate for them and whom they can go to when they need someone to talk to or some help navigating high school. In advisory during the 2019-2020 school year, the book "13 Things Mentally Strong People Don't Do" by Amy Morin was used to help students build mental strength by addressing topics such as maintaining your power, embracing change, and being willing to take calculated risks. As the smallest high school in our district, we can provide more individualized attention and support to our students. Teachers get to know students better, and the school counselor and school therapist are available to address student concerns and mental health issues.

## **PART IV – CURRICULUM AND INSTRUCTION**

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### **1. Core Curriculum, Instruction, and Assessment.**

#### **1a. Overall approach, which may include overarching philosophy or approaches common across subject areas**

New Century faculty and staff agree with William G. Spady's statement, "All students can learn and succeed, but not on the same day in the same way." It is our mission to help all student reach their full potential by consistently maintaining high expectations for all while working to find the best ways to support and encourage them. Rigor must be present to keep students challenged and engaged, but a balance is necessary to reduce frustration.

Students are willing and able to learn more when they can see how the material relates to their lives or to their future careers. Relevance helps students connect new material to things they already know and retain the material because of its importance to the world as they see it. As a Science, Technology, Engineering, and Math (STEM) school, we incorporate STEM concepts in all subjects to reinforce the relevance and importance of course material. Project-based learning gives students the opportunity to engage with course content and apply it in creative and resourceful ways. Students display their best work at the STEM Showcase each spring when students in each subject area and grade level show off their best STEM-related work products for parents, potential students, and local industry.

Having a relatively small student body allows teachers to get to know the students better. As a result, teachers can connect course content to areas of interest and events in the students' lives. Faculty and staff are also better able to support the students' mental health as they develop nurturing relationships and provide emotional support and encouragement.

Students want to do work that matters. Schooling today must move beyond worksheets and answering chapter questions. We now must focus on applying information that is readily available to solve problems and improve the quality of life.

#### **1b. Reading/English language arts**

New Century has four English teachers who each teach one grade level and at least one elective. Students typically have a different teacher each year, and all four English teachers get to know all the students by the time they graduate. Students progress through four sequential English courses that incorporate grammar, literature, and writing. A wide variety of texts are used to improve reading comprehension, critical thinking, and textual analysis. Regular and advanced courses are available at each grade level.

The English department shares the philosophy that every student can learn, though not always in the same way. To reach each student, it is important to know each student. The English teachers strive to build solid relationships with the young people they teach. This begins with student surveys and parent conferences but extends well beyond first-day questionnaires. The English faculty believes in listening to the students and observing them throughout the year to determine whether the approaches used are effective or adjustments need to be made to meet student needs. English teachers take responsibility for making material accessible, yet as rigorous as possible. Multiple strategies are employed including reading aloud and modeling metacognitive thinking, which involves verbally breaking complex texts into chunks and thinking about them aloud with the students. Seeing this metacognitive approach to reading in practice is key in helping students learn to read with fuller understanding because until they grasp the need for and practice the use of metacognition, they tend to skim only for surface details without thinking deeply about what is hidden between the lines. Graphic organizers are used to help students break down difficult texts or organize their own thoughts before writing. Classes watch and discuss video clips of plays to determine a director's interpretation and how it meshes with students' own interpretations.

Not only do our English teachers use a wide variety of instructional strategies, but they also use varying assessments. Students respond to reading in quick quizzes to formatively assess comprehension, essays to

summatively assess deep understanding, and with alternate assessments such as one pagers which allow students to access part of the brain triggered by drawing. Using this visual approach gives students with more artistic abilities a chance to showcase their talents and feel accomplished. Moreover, these assignments require analyses of texts, which are then mapped in visuals. Socratic seminars take place, wherein students prepare in advance for a discussion, and discussion board forums allow students who feel less comfortable sharing ideas aloud a chance to participate. No matter what form of assessment is used, the goal is the same: to ascertain where students are and what should be done next. If an assessment reveals that students have mastered an objective, the class moves forward; if it reveals that students are still struggling, the teacher will reinforce or try a different approach. New Century English teachers take the time to know the students as individuals with individual needs and concerns. That way, the teachers can teach the students, not just the materials.

### **1c. Mathematics**

The mathematics teachers at New Century know the importance of a strong math foundation for all students. They work diligently to reinforce basic skills while teaching new content throughout the year. Students are encouraged to explore different methods for solving problems to help them understand why the underlying methodology works and not just follow a rote procedure. Most New Century students start at Honors Geometry or above, but Algebra 1 is also offered. A progression through regular or honors courses in Geometry, Algebra 2 with Trigonometry, and Precalculus prepares students for Advanced Placement (AP) Statistics or AP Calculus. Students who advance beyond the math courses we offer then participate in dual enrollment courses at a local community college or university. Additional math courses such as Discrete Mathematics and Mathematical Modeling are also available. AP Computer Science Principles and AP Computer Science A can be taken for math credits.

Math teachers use a variety of instructional strategies to help students master and retain course content. Traditional strategies such as group problem solving, small group instruction, peer tutoring, and graphic organizers are used in conjunction with less traditional strategies such as games, escape room activities, scavenger hunts, and video projects. Technology plays a part in most lessons and projects.

Application of math concepts to daily life is an integral part of each math course. Showing the relevance of mathematical concepts to students' lives and the world around them helps make connections that increase comprehension and retention. New Century teachers incorporate projects that connect the math content being learned to STEM topics being taught in other classes. Hands-on activities, data collection, and research projects may be used to help students learn to apply concepts to real life.

Both formative and summative assessments are used to identify which concepts are mastered. Summative assessments come in the form of unit tests, quizzes and projects and help identify weak areas of comprehension which are incorporated into the next unit through activities and varied instructional methods. Formative assessment can come in forms such as bell ringers, homework and in-class projects and are used to identify where daily instruction should focus. Formative assessments, entrance/exit tickets and 1:5 ratings are used to tell how students feel about a given lesson or how well they grasp a concept. Mathematics teachers sharpen students' problem-solving skills and help them to reason abstractly and quantitatively by using technology as a learning tool to enhance comprehension rather than allowing it to become a hindrance to concepts.

Mathematics teachers strive to show all students that they can excel at math. The primary goal is to develop self-confident, logical thinkers who are able to persevere and utilize a variety of approaches to solve problems. The importance of mathematics goes well beyond computational and mental math skills to developing reasoning, programming, and decision making skills in our students.

### **1d. Science**

All New Century students begin with regular or honors Biology and Chemistry. After completing these courses, students have a wide array of science classes from which to choose including AP Biology, AP Chemistry, AP Physics, AP Environmental Science, Advanced Forensic Science, regular Environmental

Science, and Earth and Space Science. Additional science courses are offered in all grades as part of our Biomedical Science strand including Genetics, Bioinformatics, and Neuroscience.

The science department integrates hands-on, skills-based learning using labs or projects in as many lessons as possible. This allows students to create legitimate connections to content and facilitates discussion on how to apply the content to real world problems. Giving students the opportunity to extrapolate the content, draw their own conclusions, and see how the material interacts with our world is essential.

Assessments are used to check for understanding and to decide areas of content that need to be remediated. Student mastery of course content may be assessed through a variety of measures including lab reports, data analysis, projects, tests, and presentations. Teachers use assessment data regularly to adjust instruction and ensure that students are provided support and enrichment as needed.

Technology is an integral part of learning and is used for delivery of instruction, posting class assignments, virtual labs, and video tutorials. Online science resources are used in each course to support and enhance the learning.

Labs are used extensively to ensure students interact with the content, collect and analyze data, reach conclusions based upon the data collected, and then present their results and conclusions. Some activities students might see in a lab include identifying the species based on a bone fragment, determining the cause of death using blood splatter at a crime scene, and diagnosing an illness based on the symptoms and vital signs of a patient.

#### **1e. Social studies/history/civic learning and engagement**

During their four years in high school, all New Century students take regular, honors, or Advanced Placement courses in World History, U.S. History, U.S. Government, and Economics. Students also have the opportunity to take AP Human Geography and AP European History. The History of Technology and Psychology are electives offered by our social studies department.

Social Studies teachers use a variety of instructional approaches including lecture, class discussion, term papers, biographies, articles, projects, and online resources such as National Public Radio. Assessments are used to evaluate how much material the students have retained and to assess the need for additional support or changes in instruction.

The social studies teachers strive to connect scientific and technological innovations with the events going on in the world at that time. They show connections between historical events, cultural changes, and industrial advances in the world. They help students understand different cultural and socioeconomic backgrounds by experiencing diverse customs of people from other countries through sampling authentic cuisine, displaying traditional clothing, and traveling abroad in person and virtually.

Students learn to become more aware and think more critically about the world around them and understand how societies have evolved and what caused them to change. The goal is to prepare students to become better citizens by making them knowledgeable and empathetic to those who live in the United States as well as the rest of the world. Social studies classes help students learn how home, school, work, and recreation interrelate.

#### **1f. For secondary schools:**

Many students select a college major or an occupation based on little knowledge or experience in the field. New Century requires all students to select a strand of study which can be computer science, engineering, or biomedical science. Students take two strand classes each year and have the opportunity to graduate with eight classes in their selected strand of study. Students can change strands if they determine that they are not interested in or not suited for the strand initially selected. By immersing themselves in the selected strand, students can determine if they are interested in pursuing a career in that field or a related field.

New Century works with area businesses to review and make adjustments to specialized courses each year. Additional opportunities for students are also explored such as industry mentors, field trips to local companies, and internships. Local community colleges and universities allow students to participate in dual enrollment courses and get a head start on their degree. English and social studies dual enrollment courses are currently offered on our campus, while students travel to the campus to participate in other courses. Advanced placement courses also provide students the opportunity to participate in college-level courses and potentially earn college credit for their work.

Students are able to participate in the Job Fair in the spring of their junior year. This job fair gives them the opportunity to interview with various companies, get feedback on their interview skills and resume, and potentially receive offers for internships during the summer or their senior year. Many seniors participate in internships with local companies learning skills in their selected strands.

**1g. For schools that offer preschool for three- and/or four-year old students:**

**2. Other Curriculum Areas:**

New Century Technology High School's Engineering department utilizes many different sources for curriculum: Project Lead the Way (PLTW), state standards, AP, local college support, and teacher-created. Each of these platforms utilizes teamwork and communication on various levels (within and out of the classroom). Assessments may require producing a tangible artifact, conducting research, analyzing data, and more formal quantifiable methods.

Beginning engineering classes embrace the PLTW Engineering curriculum by utilizing researched-based techniques to support students in their acquisition of necessary skills and knowledge that will help them thrive in college, career, and beyond. Students are given access to real-world, applied learning experiences through hands-on opportunities. Our engineering courses empower students to discover and explore areas of interest, imagine and design solutions to real-world challenges, and become independent, confident problem solvers. Engineering classes present students with tasks and challenges that require problem solving, teamwork, creativity, and knowledge to resolve. While students are engaged in hands-on activities, projects, and problems that are reflective of real-world challenges, they are acquiring necessary skills such as collaboration, accountability, communication, organization, and time management. These in-demand skills are validated by the world's leading companies and also provide students with an invaluable connection between what they are learning in the classroom today and how it correlates to the paths they will take in the future.

At NCTHS, students gain experience in many engineering disciplines including, but not limited to, mechanical, electrical, aerospace, civil, industrial, environmental, and aeronautical engineering. All engineering students must learn how to follow the design process, program in a language like C++, and draft 3-dimensional computer models. Content correlation between engineering, math, and science classes helps students make connections, draw conclusions, and test concepts.

New Century also offers specialized courses in computer science. Any student can take classes such as Computer Science Fundamentals (Python), AP Computer Science Principles, and AP Computer Science A. Students who want to learn more about programming can also take C++, Python Plus, Linux, App Development, and Data Structures. Students get experience creating programs in a variety of languages that can be used to solve a wide variety of issues.

Our Computer Science strand also offers a four-course sequence in cybersecurity. This sequence allows students to learn about a variety of topics and gives them the opportunity to earn one industry certification each year. These certifications include both Network+ and Security+. Participation in competitive events allows students to hone and showcase their skills. These competitions include Cyber Patriot, Code Quest, University of Alabama Capture the Flag events, Wargames competition, Cyber-Cup, Regional CS coding competitions, CodeCombat, and Hack-a-thons.

practice. Students are exposed to a variety of topics and given opportunities to put the knowledge to work through clinical experiences, research projects, and competitions. Partnerships with local businesses ensure that students are exposed to current medical trends and have the opportunity to apply what they have learned.

Spanish is taken by many students at New Century. The Spanish teacher will begin offering AP Spanish next year in response to student requests. Students may take other languages such as German, French, Latin, and Chinese online through our state online learning program, ACCESS. Learning a foreign language can be very helpful in expanding vocabulary and word usage. Students are encouraged to take at least two years of a foreign language so their options for college are broader.

New Century also offers CrossFit for students and teachers. A Certified CrossFit Trainer provides instruction and motivation. We have the first high school CrossFit affiliate in Alabama and appreciate strong community support.

Students at New Century benefit from our sharing a building with another school. They are able to take art, media, physical education, health, band, theater, music, and dance from highly qualified and experienced teachers in those fields. These elective teachers often partner with core or strand teachers to create joint projects that support curriculum in multiple content areas. The media class developed videos to be used in science classes. The engineering class designed a moving prop for a play. Art students helped decorate the robot prior to competition. Collaboration and cross-curricular projects benefit all in our building.

### **3. Academic Supports:**

#### **3a. Students performing below grade level**

Tailoring instruction to meet the needs of all students is the most challenging part of teaching. At New Century, many assignments allow more than one approach for meeting the criteria for showing mastery. Providing choice gives all students the opportunity to thrive. Options may include group work, posters, tri-folds, written reports, videos, or verbal presentations.

Because we are part of a one-to-one district, each student at New Century has a laptop. This technology allows teachers to post assignments, lectures, and resources online for students. Being able to access materials anytime and anywhere gives students a distinct advantage. They are also able to reach out to their teachers through email or Canvas whenever they need help.

New Century's bell schedule includes one hour each day Tuesday through Friday for Power Hour. This time is designed to allow students to eat, socialize, participate in school activities, and get assistance from teachers or peers as needed. Each teacher has office hours two days a week, and someone in each department is available every day. Peer Helpers and National Honor Society also offer tutoring during Power Hour. Tutoring is used for both enrichment and remediation.

All teachers participate on the Problem-Solving Team (PST), which meets once a month to discuss students who are struggling and propose strategies that can be used to encourage and assist them. Having all the student's teachers in the room has enhanced our ability to pinpoint issues and develop more specific targeted supports. A school administrator and the school counselor also participate in each PST meeting.

Data is reviewed periodically to ensure student needs are being addressed. State assessment data, classroom formative and summative assessments, and observational data are all used to pinpoint individual needs. Teachers have common planning periods by department and by grade level on alternating days to provide time for collaboration.

#### **3b. Students performing above grade level**

Students at New Century are encouraged to work to their full potential. For some students, this may involve taking dual enrollment courses at the local college while others may participate in lab classes or tutoring to

master the skills required in their classes. We have increased our partnership with a local community college and university to expand dual enrollment opportunities available to our students. We also offer seventeen advanced placement courses at New Century that allow students to earn college credits based on their performance on the AP exams.

Our goal is to design a unique plan for each individual student tailored to their interests and abilities. Students select a strand of study when they enter the school and are able to request new courses and seek additional opportunities with businesses throughout their high school years. Each year we actively recruit businesses to provide speakers, projects, tours, job shadowing, and internship opportunities for our students.

Students take at least two courses in their selected strand each year. The counselor and their strand teachers work with them to ensure they are working to their full potential and being adequately challenged. Students who decide they are not suited to a particular strand are allowed to switch strands for the following school year.

Each year the courses offered at New Century are reviewed and revised based on student interests and abilities, as well as industry recommendations. Teachers incorporate project-based activities in their classes that can require varying levels of ability and creativity. These projects allow students to uniquely display their talents and knowledge.

### **3c. Special education**

New Century has a collaborative teacher on staff to support our special education students. Transition classes are provided for the students to allow time for them to plan for life after high school and work on skills needed to be successful in the world. The collaborative teacher's classroom serves as a resource room where students can go to get extra support in their classes, take tests in a quiet environment, cool down when they are stressed, or just have someone to talk to.

All special education students have an Individualized Education Plan (IEP) that is followed by all of their teachers. The plan is reviewed annually or more often as needed to ensure the proper supports are in place for each individual student. Special education students participate in all strand and core classes with the general student population. Extra supports are provided according to their IEP.

### **3d. ELLs, if a special program or intervention is offered**

A district English Language Learner (ELL) teacher supports the ELL students at our school. She conducts annual testing on those ELL students still requiring services and visits the school periodically to check in with the students.

The district provides resources such as ELLevation software to assist ELL students with acquiring English language skills. The ELL teacher provides training for teachers on scaffolding and specific supports designed to help our students.

The district provides additional support as needed for ELL students and their parents. District documents are often available in both English and Spanish. These documents can be requested in other languages as needed.

Peer tutors are available in our school for students who speak Spanish. Students are encouraged to support each other as they strive to master the English language. Students, teachers, and staff have helped translate conversations as needed to ensure communication is clear and available.

### **3e. Other populations (e.g., migrant), if a special program or intervention is offered**

## **PART V – SCHOOL CLIMATE AND CULTURE**

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### **1. Engaging Students:**

New Century Technology High School has approximately 450 students who each declare a strand of study – biomedical science, computer science, or engineering. This arrangement creates a family culture beginning in 9th grade and strengthening throughout the students' four years as students bond with fellow students and teachers in their strand. Because of the family nature, a whole-student approach includes discussion of learning/personality styles and identifying student's strengths and weaknesses. Frequent team work provides unique tasks for every student and creates mutual respect for each person's abilities while allowing for accommodations where necessary.

Students at New Century are engaged and motivated. The faculty is passionate about their subject and about student success. We want every student to be an active, life-long learner and thrive no matter where they go after graduation. We strive to help students find something they are passionate about, acquire the skills needed to be successful, and plot a course for the future. The school culture at New Century regards hard work and academic success as a normal and expected part of the school. All students can thrive given the right motivation and support.

Every Monday during Power Hour, students are required to attend Advisory. Advisory groups are assigned to all incoming students and remain the same throughout their high school years. Advisory groups give students a core group of their peers that they bond with as well as a teacher who can advocate for them. Advisory teachers share lessons about developing strong study habits, developing mental strength, preparing for college and career, and other topics of interest to the students.

Students often come to us highly motivated, but we try to keep them energized and focused on their ultimate career goal. Success by the Slice is a program offered by our PTSA four times a year. Each time a professional speaks to the students about topics that are relevant and of interest to them. Topics have included proper dress for a job or presentation, interview skills, effective communication, why high school classes are important to your future, how to get that dream job, and positive thinking.

Students at NCTHS know the importance of grades when it comes to applying for internships, scholarships, and college admission. We strive to show relevance in our courses and show the students that we care about them as individuals.

### **2. Engaging Families and Community:**

The STEM Showcase takes place every spring and gives parents, students and local businesses the opportunity to see what our students have accomplished during the year. This event allows students to showcase their work, hone their presentation skills, and meet representatives from businesses and institutions of higher learning. It also gives local businesses the opportunity to view student work and express interest in working with us.

New Century has an active and supportive Parent Teacher Student Association (PTSA). Their support makes it possible to reward teachers, students, and staff for their hard work and dedication. They provide funding and manpower for teacher appreciation activities, freshman orientation program, a student celebration at the end of the year, Success by the Slice program for students, and Coffee with the Principal for parents. Success by the Slice provides students with expert advice from professionals to prepare for life beyond high school. Coffee with the Principal provides parents an opportunity to visit the school four times a year, hear updates, and ask any questions they may have. The PTSA provides support for many school functions and actively seek grants to sustain or improve existing programs. They are always ready and willing to help as needed.

New Century partners with several institutions of higher learning to provide our students opportunities for dual enrollment and participation in challenges. The University of Alabama in Huntsville (UAH) works with

our engineering students each year in the Scientific Payload Design class. Juniors participate in “Adventures in Engineering” with Calhoun Community College. Dual enrollment courses are available in all three strands.

Partnerships with local businesses have helped make our school what it is today, and we strive to keep building those relationships to provide more opportunities for our students. Businesses contribute to our school through participation on the Advisory Committee, participation in the Job Fair each spring, or by providing speakers, tours, or challenges for our classes. The Advisory Committee provides input on courses offered, curriculum taught, projects utilized, and internships available. Business partners include companies such as HudsonAlpha, Northrop Grumman, Blue Origin, the Chamber of Commerce, NASA, Lockheed Martin, Mitre, and Iron Mountain Solutions. Students also compete in local events such as Robotics competitions, Science Olympiad competition, NASA Hack-a-Thon, and the new Hudson Alpha’s Tech Challenge – HATCH. We are always searching for opportunities for our students to learn new skills and showcase what they are able to do.

### **3. Creating Professional Culture:**

New Century has a climate of high expectations for everyone. School leaders are dedicated to providing resources and training to support teachers throughout the year. At the beginning of each school year, the faculty reviews the school mission, vision, and data before establishing goals for the year. Departments and teachers then use the school goals to establish their targets.

Teacher voice is important at New Century. Teachers provide the expertise in their subject area and must be allowed to think and teach outside the box. Teacher input in goal setting, curriculum, and instructional practice is vital to successful daily operations in the school. Teachers who feel they are heard are more likely to work harder, care deeper, and plan more thoughtfully.

All teachers complete a self-assessment in the fall and these results are used to design the school professional development plan for the year. Two of the top needs are selected and activities are designed to enhance teacher knowledge and expertise in the selected areas. Adjustments are made to the professional development plan throughout the year in response to current needs. The focus this year has been on research-based instructional strategies and culturally relevant teaching. When the need to address mental strength with our students became evident, we developed advisory lessons for students utilizing highly effective research-based strategies. This approach allowed us to meet the goals of our school professional development plan while also responding to the needs of our students. Teachers are expected to be involved in all school professional development and may also attend training in their content area throughout our region. Articles, books, videos, district and community resources are also provided to encourage teacher growth. All professional development provided for teachers will ultimately result in benefits for the students.

Administration has an open door policy which allows teachers to communicate openly about issues and brainstorm solutions. Administration quickly resolves issues involving district requirements, parent concerns, and student behavior. Administrators are sympathetic to teachers’ needs and try to accommodate reasonable requests. High levels of confidence are given to the departments as they implement their programs. Administrators respect teachers’ time and expertise. Teachers are given freedom and flexibility in their classrooms, treated like professionals, and encouraged to provide engaging and innovative classroom experiences.

### **4. School Leadership:**

The leadership team at New Century focuses on building trusting relationships, developing a shared vision, empowering team members, communicating openly, and encouraging innovation. It is important for everyone to be included in the planning and implementation of the school action plan. Allowing stakeholders to have a voice in the planning process creates more buy-in and results in a more collaborative effort throughout the year.

As we prepare the workforce of tomorrow, it is important to realize that not only are job requirements ever changing, the jobs themselves are changing. Many of our students will be doing jobs that do not currently exist. Preparing students for emerging professions requires innovation and embracing change. New Century school leaders are always searching for creative, forward-thinking team members to help prepare our students to be the leaders of tomorrow.

Every faculty and staff member is important to the continued success of the school. Administrators empower team members to do their job to the best of their ability and provide support, encouragement, resources, and training as needed. Administrators focus on helping faculty and staff develop skills that can be used to advance the craft and/or position of each individual in the school.

The school leadership team consists of the principal, assistant principal, counselor, and magnet coordinator. Department chairpersons serve as leaders for their subject area.

Administrators protect learning time while encouraging students to be involved in school activities. The intercom is only used during the school day in an emergency. The bell schedule was modified to allow time for students to participate in school activities, get extra help in their classes, or have some down time during the school day. Curriculum in strand classes is reviewed and updated on a regular basis to ensure students are well prepared for their next undertaking.

Students are encouraged to have a voice as well. Student Government Association (SGA) officers meet with the principal to discuss ideas and concerns. Each advisory group has a representative in the SGA so everyone's voice can be heard. This full involvement provides representation for students at all grade levels.

The school leadership team believes in the value of team work. Communication, empowerment, and trust are key factors in building a strong, cohesive team with a clear and united vision for the school. Team members are encouraged to challenge the status quo and feel a sense of urgency to relentlessly pursue what is best for our students.

## **PART VI - STRATEGY FOR ACADEMIC SUCCESS**

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Relationships are the key to New Century Technology High School's success. Every stakeholder is a key player in building our programs and helping our students realize their potential. Teachers, staff, students, parents, institutions of higher learning, businesses, and the community all work together to provide the resources, knowledge, and motivation for us to continually advance the program.

Working with a strong team makes every challenge seem manageable. Knowing that others are there to assist when needed affords freedom to take risks and innovate. The faculty makes every effort to collaborate across curriculum and to be supportive of the efforts of other teachers and student groups. A dedicated and supportive staff provides extra hands, creative ideas, and boundless energy for every endeavor.

The students make this school great. They come from all over the city with different backgrounds, beliefs, and experiences; however, when they enter the school building everyone comes together. School staff strive to ensure that all students feel safe and included since many of them have left their peer group to attend New Century. Teachers believe in the ability of all students to achieve and work with them to find their strengths and address their weaknesses. The students and teachers embrace everyone and push each other to be successful. Teachers strive to cultivate ambition in every student by believing and supporting the mindset that each student is capable of success while providing learning opportunities that engage and inspire a continued desire to learn.

Partnerships with institutions of higher learning and local businesses have helped mold this school. Advanced course offerings in technical fields allow our students to advance at their own pace and progress to college or career well prepared. Consistent communication allows us to keep abreast of college courses available related to our strands of study. Local businesses provide the expertise and experiences that prepare our students for successful careers in advanced technology fields. Whether meeting with the Advisory Committee, a small group, or an individual company, New Century strives to develop opportunities for everyone interested to be involved with challenging and encouraging our students.

New Century was created because of a need in our community. Parents wanted options for their high school students and companies needed future workers with strong STEM skills. We strive to keep our community involved and informed about our school. Open honest communication with all stakeholders ensures consistent support for an ever-evolving program at New Century.