Ypsilanti Community Schools

Ypsilanti STEMM Middle College

(Science, Technology, Engineering, Mathematics and Manufacturing)

2017-18

Course Guidebook
Updated August 2017

Ypsilanti STEMM Middle College is a high school consisting of a unique Small Learning Community focused on STEMM curriculum and experiential learning. We are located in the lower level of the Ypsilanti Community High School Building located at:

2095 Packard Road
Ypsilanti, MI 48197
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YCHS STEMM Middle College Overview

Mission
The mission of Ypsilanti STEMM Middle College is to prepare students to excel in a diverse, information-based technologically advanced and ever-changing society.

Vision
The STEMM (Science, Technology, Engineering, Mathematics and Manufacturing) Middle College offers a rigorous, relevant and technologically advanced learning experience for all students. Businesses, community partnerships, and STEMM-based electives are used to create and incorporate real-world experiences in the learning process. Inquiry and project-based instructional best practices are implemented to ensure every student accomplishes their goals. In order to create a meaningful educational experience, we have established a system of shared responsibilities and collaboration, supported by the trust and respect of students, staff, and the community. The culminating learning experience for STEMM will be a Senior Capstone project.

Middle College
In 2015 the STEMM Middle College transitioned to a Middle College partnering with Washtenaw Community College, where there are a number of STEMM-related pathways that earn Certification in a variety of STEM fields. Students can earn up to 60 college credits as a part of our 5-year high school.

Core Values
Responsibility: We believe that in order to be contributing members of society, today’s students must learn to make positive choices and take charge of their learning experiences.
Resilience: Students must be empowered to make choices to improve their futures and create resilience when faced with setbacks.
Respect: We believe that in a productive and prosperous society we must treat others in our community with respect, tolerance and with genuine concern for their well-being.
Diversity: We believe we will protect and preserve only what we love, love only what we know, and will know only what we learn. Therefore, it is imperative that we learn about and value all cultures in order to protect and persevere our world heritage.
Creativity and Innovation: We believe that in order to develop a positive educational environment, all stakeholders must work together to establish a safe, orderly and respectful atmosphere, where innovation, creativity and a positive self-image can be developed and nurtured.
Vibrant Family and Community Partnerships: We believe that it takes a community to educate a child, and that technology has expanded our community beyond all visible walls.
High Expectations for All Students: We believe in using rigorous, relevant and technologically advanced learning experience for all students. Through STEMM-based curriculum, collaboration and relevant work, students will make significant advances in their understanding of the world.
Student Voice and Empowerment: We believe that, in order to develop a meaningful educational experience, we must build and preserve a system of shared responsibilities and collaboration between the learner, their family, the community and staff. This requires establishing a high level of trust and respect between all participants.
Expectations

Participation:
Students are expected to participate in all classes on a regular basis. Attendance is of paramount importance in order to maintain a high level of trust between all participants in each school activity in which the student is involved. Along with attendance, students are expected to actively participate; engaging in discussions by listening to classmates and contributing on a regular basis to class discussions, being willing to help others and having an “on-task” behavior is necessary in order to have a meaningful educational experience.

Ethics:
Behavior inside and outside of the classroom should be professional and inspiring to those around you. You should never do anything that would embarrass yourself, your family or your school. You should give your best effort in all you do, including: classwork, homework, projects, group-work, extracurricular activities and community/service-to-learn projects. Doing less than your best is unacceptable behavior. Honesty is necessary 100% of the time. This includes ethical use of technology in all situations, both inside and outside of the classroom.

Use of Technology:
Use of cell phones, I-Pads, Internet, intranet, personal computers, YouTube, social media, DVD recordings and other applicable technology should never be used in a way that shows disrespect towards others. Using any personal device while engaging in a discussion with others, during class or group lectures or discussions, or while engaged in classwork or a class project is unacceptable. It is expected that students will use technology in accordance to the core values we hold to be true (see core values). Technology should seamlessly enhance the students’ educational experience, not detract from the classroom environment or get in the way of the student’s education.

Homework/Classwork:
Students are expected to complete homework and classwork as assigned and in a timely manner. Families, students and staff must work collaboratively to ensure the students’ success.

Respect:
All participants in our program must show respect to each other and respect the facility, equipment, technology and the learning process. Treat others as you wish to be treated and treat the facility and equipment with the utmost respect. Students in our program should set an example for the rest of the student body.

Scholarship:
Students are expected to work to the best of their ability. Frustration is a part of learning; and students will realize that when they are frustrated, they are learning at a higher level than when they are completing tasks easily and without frustrations. When students are struggling in any academic or elective area, they will learn to seek resources to ensure their success. Part of becoming a scholar is learning how to overcome struggles and finding ways around “road-blocks” to their learning. Much work will be done to develop problem-solving skills, to enable them to attack tough problems and construct meaningful connections with their learning.
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YCHS STEMM Curriculum and Standards

Common Core Standards
The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. Teachers in the STEMM small learning community rely on the Common Core State Standards when they are deciding what to teach in each of their classes.

Understanding by Design
When teachers employ Understanding by Design, they see themselves as coaches whose purpose is to lead each student to mastery through continuous improvement. Students are provided with opportunities to learn and grow in a variety of ways, such as explaining, interpreting, applying, shifting perspectives, empathizing and self-assessing. The teacher uses the results of the student’s performance to inform future curriculum and instruction. The teacher and students are engaged in a focused and sustained conversation to apply new knowledge to long-term problem solving.

Challenge Based Learning
Challenge Based Learning is an engaging, multidisciplinary approach that starts with standards-based content and lets students leverage the technology they use in their daily lives to solve complex, real-world problems. Challenge Based Learning is collaborative and hands on, asking students to work with other students, their teachers, and experts in their communities and around the world to develop deeper knowledge of the subjects they are studying. Teachers in the STEMM small learning community apply Challenge Based Learning in order to provide students with authentic experiences that will lead them to mastery of course content and real-world skills.

FIRST Robotics Engineering Principles
The idea for the YCHS STEMM Middle College grew out of work with our FIRST Robotics Team, Team 66. Using FIRST Principles, engaging our students in Engineering principles to design and compete in FIRST Robotic Competitions allowed us to design a highly competitive robotics program, from which our drive to build a STEMM Community arose. FIRST (For Inspiration & Recognition of Science and Technology) is the backbone of this Middle College. FIRST’s mission is to show students of every age that science, technology, and problem-solving are not only fun and rewarding, but are proven paths to successful careers and a bright future for us all.
Academic Support and Enrichment

Academic Support
Designed to give each student the maximum opportunity to help him/her become successful in their educational progression, this course will: develop a positive attitude towards learning leading to an increase in desire, effort and success; develop 21st Century life and career skills by focusing on individual learning profiles, self-advocacy, and study skills necessary for academic success; develop their own decision-making patterns, skills and problem-solving techniques to evaluate their effectiveness for life-long learning.

Strategic Reading (May be offered as a Summer Enrichment Program)
Strategic Reading courses are intended to improve a student’s vocabulary, critical-thinking and analysis skills, or reading rate and comprehension level. Although these courses typically emphasize works of fiction, they may also include works of nonfiction (including textbooks). Strategic Reading courses often have a time-management focus, offering strategies for note-taking or for understanding and evaluating the important points of a text.

Study Skills in Reading (May be offered as a Summer Enrichment Program)
Study Skills courses prepare students for success in high school and/or for post-secondary education. Course topics include reading improvement skills, such as scanning, note-taking and outlining; library and research skills; listening and note-taking; vocabulary skills; and test-taking skills. The courses may also include exercises designed to generate organized, logical thinking and writing.

Study Skills in Mathematics (May be offered as a Summer Enrichment Program)
Study Skills courses prepare students for success in high school and/or for post-secondary education. This course will reinforce and expand students’ foundational math skills, such as: arithmetic operations using rational numbers, area, perimeter, and volume of geometric figures, congruence and similarity, angle relationships, the Pythagorean theorem, the rectangular coordinate system, sets and logic, ratio and proportion, estimation, formulas, solving and graphing simple equations and inequalities.
**English Language Arts**

**Advanced Topics in Literature**
Offered odd years only

**College Prep Reading/Writing**
Offered odd years only

**Detective Science and Literature (Literature of a Genre) (1 Credit)**
Literature studies will examine the historical background, various styles of story-telling and forensic sciences tied to detective work both fact and fiction. Students determine the underlying assumptions and values within the selected works and also examine the structure, techniques, and intentions of the genre being studied. Oral discussion is an integral part of these genre-oriented courses, and written compositions of varying lengths are often practiced.

**English/Language Arts I (9th grade) (1 credit required for graduation)**
English Language Arts I is a study of communication and use of language. Students will write, read, speak, and listen to explore many genres of literature.

**English/Language Arts II (10th grade) (1 credit required for graduation)**
ELA II builds on the skills of ELA I, but balances focus on reading and writing. Students will think about writing and audiences in new ways as they write persuasive, critical, and creative essays. The readings from this course will challenge students to decide author's intent and to analyze technique.

**English/Language Arts III (11th grade) (1 credit required for graduation)**
ELA III will continue to develop writing skills. The literature students read in this class will be central to the students writing. We will be pushing to develop writing that is clear, organized and logical. Students will begin to work with the tools for research writing.

**English/Language Arts IV / Senior Capstone Project (12th grade) (1 credit required for graduation)**
These courses blend writing practice with reading literature and the creation of the student’s Capstone Senior Project. Students will practice analyzing and comparing the author’s craft as well as meaning in both fiction and non-fiction works. Additional practice will include developing other language skills such as supporting projects with research, editing and appropriate grammar style to suit the kind of writing chosen. Typically, students primarily write multi-paragraph essays, but they may also write one or more major research papers, including items required for the Senior Capstone Project completed by all YCS 12th graders.

**Research/Technical Writing (1 Credit)**
Research/Technical Writing classes prepare students to write research papers and/or technical reports. This class emphasize researching (primary and secondary sources), organizing (material, thoughts, and arguments), and writing in a persuasive or technical style with proper attribution (credit) to sources. Enhanced self-editing, peer/teacher response, and student sharing before submitting final products, is required.
Science Fiction and Fantasy Literature (1 Credit)
Students will be introduced to the genres of Science Fiction and Fantasy using major authors’ works. This course is geared towards the student who has passed, though not necessarily mastered, English at the grade level; but additionally, the student who is interested in extending his or her knowledge of the ties between the sciences and their extrapolation into creation and invention. Students will investigate the context of both history and society when the piece was written in order to develop and understanding of the author’s motive and commentary on the world at large. Students will read together and independently for discussion and writing purposes. Students will participate in reading/writing workshop practices which will include daily writing, journaling for understanding and development, small group discussion and frequent formal and informal assessments to promote speaking and listening to others’ insights. Emphasis will be placed on supporting each student’s reading and interpretive advancement. Movies will also be watched to expose students to a wider variety of stories representing the genre.

Manufacturing

Computer Aided Design (CAD) and 3-D Printing (Pre-Requisite Introduction to Manufacturing) (1 credit)
In this course students will learn about the design process from concept to creation. Students will use imagination and interest to guide the projects to create an interactive, student-driven, learning environment. Using CAD, students will design and build a wide-range of tools and parts used in manufacturing, including RC Vehicles and Robotics. Projects will use CAD software to design 3D parts which will be manufactured / machined with conventional machine tools, as well as with the use of 3D printers.

Introduction to Manufacturing—Introductory (1 credit)
This introductory course introduces students to the various methods used to process and transform materials. Processing techniques covered usually include casting, forming, separating, assembling, and finishing. The courses may also include an overview of management techniques in planning, organizing, and controlling various segments of the manufacturing process, including design, engineering, production, and marketing.

Manufacturing Science (Materials and Processes) (Pre-Requisite Introduction to Manufacturing) (1 credit)
Materials and Processes courses expose students to the tools, machines, and processes that may be encountered in manufacturing-related occupations. In particular, this course introduces the analysis, testing, and processing of common industrial materials through hands-on activities and exploration of standard machine tool practices.

Sustainable (Engineering) Design (1 credit) (Pre-Requisite Introduction to Manufacturing) (1 credit)
This course will provide students with the opportunity to apply engineering research principles as they design and construct a solution to an engineering problem. Students typically develop and test solutions using computer simulations or models but eventually create a working prototype as part of the design solution.
Creative Engineering (Engineering Design) (Pre-Requisite Introduction to Manufacturing) (1 credit)

Engineering Design courses offer students experience in solving problems by applying a design development process. Often using solid modeling computer design software, students develop, analyze, and test product solutions models as well as communicate the features of those models.

Robotics (Pre-Requisite Introduction to Manufacturing) (1 credit)

Using FIRST Principles, engaging our students in engineering principles to design and compete in various competitions. A variety of robotics-based projects will be used to show our students that science, technology, and problem solving are not only fun and rewarding, but are proven paths to successful careers and a bright future for us all.

Mathematics

Algebra I (1 credit required for graduation)

Algebra I courses include the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first degree equations and inequalities; translating word problems into equations; operations with and factoring of polynomials; and solving simple quadratic equations. The course will include STEMM project-based learning and activities that will assist in student understanding of these topics.

Algebra II (Pre-Requisite: Algebra I) (1 credit required for graduation)

Algebra II course topics typically include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear, and quadratic equations; properties of higher degree equations; and operations with rational and irrational exponents.

Geometry (1 credit required for graduation)

Geometry courses, emphasizing an abstract, formal approach to the study of geometry, typically include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems, and formal proofs; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles.

Conceptual Calculus (Pre-Requisite: Algebra II) (1 credit)

Students will be introduced to the basic concepts of calculus (derivatives and integrals) through a review of fundamental principles studied in algebra and geometry. This course is geared towards the student who has passed, though not necessarily mastered algebra II, but who is interested in learning new, upper level mathematical concepts. Students will investigate uniform and non-uniform motion in order to develop procedures for finding rates of change of linear and non-linear functions. Students will perform geometric transformations (rotations, translations, dilations) in order to derive methods of finding areas of curved shapes. Emphasis will be placed on linking these mathematical concepts to real-world situations.

Pre-Calculus (Pre-Requisite: Algebra II) (1 credit)

Pre-Calculus courses combine the study of Trigonometry, Elementary Functions, Analytic Geometry, and Math Analysis topics as preparation for calculus. Topics typically include the study of complex numbers; polynomial,
logarithmic, exponential, rational, right trigonometric, and circular functions, and their relations, inverses and graphs; trigonometric identities and equations; solutions of right and oblique triangles; vectors; the polar coordinate system; conic sections; matrix algebra; sequences and series; and limits and continuity. The course will include STEMM project based learning and activities that will assist in student understanding of these topics.

Statistics (Pre-Requisite: Algebra II) (1 credit)
The course will include an introduction to statistics and probability including: Descriptive Statistics, Probability, Descriptive Probability Distribution, Normal Probability Distribution, Statistical Inference, Confidence Intervals, Hypothesis Testing 1-sample, Hypothesis Testing 2-sample, Correlation and Regression. The course will help students understand statistics as the statistics influence decision making in the manufacturing and science worlds. Students come away from class with an understanding of abuses and uses of statistics reported in not only local newspapers but in more critical areas in engineering and medical fields.

Performing and Fine Arts

Concert Band (1 Credit)
Courses in Concert Band are designed to promote students’ technique for playing brass, woodwind, and percussion instruments and cover a variety of band literature styles, primarily for concert performances.

Choir (1 Credit)
This course is designed to promote students’ techniques in using voice to produce music. Concerts will be a mandatory part of this course.

Art 1 (1 Credit)
This is a comprehensive course that provides students with the knowledge and opportunity to explore an art form and to create individual works of art. This course may also provide a discussion and exploration of career opportunities in the art world. It will cover the language, materials, and processes of a particular art form and the design elements and principles supporting a work of art. As students advance and become more adept, the instruction regarding the creative process becomes more refined, and students are encouraged to develop their own artistic styles. Although this course focuses on creation, they may also include the study of major artists, art movements, and styles.

Experiments in Art (Pre-Requisite Art 1) (1 Credit)
Innovation does not necessarily mean something new. It means doing something unfamiliar, often with old familiar things (AD Jameson). In this class students will be exposed to a variety of techniques and materials as they use their imagination and creativity to complete projects.

Physical, Health and Safety Education

Physical Education (.5 Credit required for graduation)
Physical Education courses provide students with knowledge, experience, and an opportunity to develop skills in more than one of the following sports or activities: team sports, individual/dual sports, recreational sports, and fitness/conditioning activities.
Health Education (.5 Credit required for graduation)
Topics covered within Health Education courses may vary widely, but typically include personal health (nutrition, mental health and stress management, drug/alcohol abuse prevention, disease prevention, and first aid) and consumer health issues. The courses may also include brief studies of environmental health, personal development, and/or community resources.

Swimming (.5 Credit required for graduation)
This course provides students with knowledge, experience, and an opportunity to develop skills in swimming.

Science & Engineering

Astronomy (Pre-Requisite Biology and Physics) (1 Credit) (AST 090)
This course is designed to introduce students to the basic concepts of astronomy. The curriculum will include investigations of our solar system, the tools of astronomy, and space exploration, both manned and unmanned. The goal of the course is to excite students about the universe, as well as to introduce students to astronomy-related careers.

Biology (1 Credit) (BIO 090)
Topics covered in biology include ecology, cell structure and function, cell replication, heredity, genetics, and evolution. The study of these topics will occur through a variety of methods, including laboratories, inquiry activities, and projects.

Chemistry (Pre-Requisite Biology and Physics) (1 Credit) (CHM 090)
This course will explore concepts such as the periodic table, atomic and quantum theory, bonding, reactions, states of matter, and acids and bases. The study of these topics will occur through a variety of means, including laboratories, inquiry activities, and projects. This is a full year course and successful completion of this course would earn a student one credit.

Engineering Applications (.5 Credit) (EGR 095)
Engineering Applications will provide students with an overview of the practical uses of a variety of engineering applications. Topics covered include computer interfacing, robotics, computer numerical control, and electronics.

Environmental Science (Pre-Requisite Biology) (1 Credit) (ENV 090)
The focus of this course is the interrelationships among plants, animals, humans, and the environment. Topics covered in this course include: human impact on the four earth systems, energy sources, and sustainability. The study of these topics will occur through a variety of methods, including laboratories, inquiry activities, and projects.

Forensics (Pre-Requisite Biology, Physics & Chemistry or concurrent enrollment in Chemistry) (1 Credit) (Offered every-other year) (CHM 098)
In this course, students will become familiar with the techniques used by crime scene investigators at a crime scene and the science behind these techniques. This course will explore concepts such as physical evidence, glass and soil analysis, fingerprints, hair and fiber analysis, chemical and ballistics analysis, autopsies, DNA, and blood typing. The study of these topics will occur through a variety of means, including laboratories, inquiry activities, and projects.
Introduction to Engineering (Pre-Engineering Technology) (.5 Credit) (EGR 095)
This course integrates technology-oriented applications of mathematics and science into pre-engineering activities for students. Course topics will include material sciences, technology processes, engineering cycle, and inquiry-based / understanding by design principles.

Microbiology (Pre-Requisite Biology) (1 Credit) (Offered every-other year) (BIO 095)
Students will be able to describe the structure of microorganisms, recognize types of microorganisms, summarize interactions between microbes and hosts, analyze microbes and their role in human disease, and discuss topics of environmental and applied microbiology. Students will investigate these topics through projects, laboratory activities, and lectures. Laboratory activities will allow students to gain skills in growing, plating, and viewing bacterial samples of various origins, as well as obtain experience in applying the scientific method.

Physics (Pre-Requisite Biology) (1 Credit) (PHY 090)
Physics courses involve the study of the forces and laws of nature affecting matter, such as equilibrium, motion, momentum, and the relationships between matter and energy. The study of physics includes examination of sound, light, and magnetic and electric phenomena.

Physics of Flight (1 Credit) (PHY 095)
This course will cover motion in the X, Y and Z-axis, Newton's Laws of Motion, Bernoulli’s Principle, Thrust, Drag, Buoyancy and Elementary Fluid Dynamics. Projects will drive student learning using Understanding by Design Principles. A wide range of “flight-ready” objects will be designed, built and tested.

Physics of Robotics (Pre-Requisite Engineering Applications) (1 Credit) (PHY 098)
This course will focus on the study of the forces and laws of nature and their application to modern technology. Equilibrium, motion, momentum, energy conversion, electromagnetism, and optical phenomena are presented in the context of current, real-world applications. Demonstrations, math labs, and applied laboratory experiments are an integral part of the Principles of Technology curriculum. This course enables students to gain a solid foundation for careers in robotics and engineering.

Social Studies

World History and Geography (1 credit required for graduation)
This course will provide students with an overview of human history and geography from the early Greek civilizations through the 20th Century, including WWI and WWII. Political, economic, social, religious, military, scientific, and cultural developments will be examined. The course will include STEMM project based learning and activities that will assist in student understanding of various historical and geographical aspects.

U.S. History (1 credit required for graduation)
This course will provide students with an overview of the history of the United States, including a review of colonization through the Civil War/Reconstruction periods learned in middle school, in depth topics from Industrialization through the civil rights movement and beyond, political, military, scientific, and social developments will be examined. The course will include STEMM project based learning and activities that will assist in student understanding of various United States historical aspects.
U.S. Government (.5 credit required for graduation)
This course will provide students with an overview of the United States government. It will examine the structure and functions of the U.S. government and political institutions, constitutional principles, the concepts of rights and responsibilities, the role of political parties and interest groups, and the importance of civic participation in the democratic process. Other topics covered will include forms of government, state and local government, the system of law, and foreign policy. The course will include STEMM project based learning and activities that will assist in student understanding of various aspects of the United States government.

Economics (.5 credit required for graduation)
This course will provide students with an overview of economics with a primary emphasis on the principles of microeconomics. The Market Economy will be studied in depth including the concepts of individual, business and government choices, competitive markets, prices, supply and demand, and the role of government. The national economy of the United States, the international economy, and personal finance topics will also be included in the course. The course will include STEMM project based learning and activities that will assist in student understanding of various aspects of economics.

World Languages and Culture

Latin American Culture
Designed to introduce students to Latin American culture.

Spanish I
Designed to introduce students to Spanish language and culture, Spanish I courses emphasize basic grammar and syntax, simple vocabulary, and the spoken accent so that students can read, write, speak, and understand the language at a basic level within predictable areas of need, using customary courtesies and conventions. Spanish culture is introduced through the art, literature, customs, and history of Spanish-speaking people.

Spanish II
Spanish II courses build upon skills developed in Spanish I, extending students’ ability to understand and express themselves in Spanish and increasing their vocabulary. Typically, students learn how to engage in discourse for informative or social purposes, write expressions or passages that show understanding of sentence construction and the rules of grammar, and comprehend the language when spoken slowly. Students usually explore the customs, history, and art forms of Spanish-speaking people to deepen their understanding of the culture(s).
Regional Career Technical Center

Automotive Technology
Automotive Technology is a NATEF Certified program in the areas of automotive maintenance and light repair. Students completing the course work will take Automotive Service Testing and earn their learning license in the automotive repair industry. Areas that will be covered include: suspension, brakes, transmission, ignition and much more. Articulated college credit is available through Washtenaw Community College, Baker College, Delta College and Lansing Community College.

Collision Repair Technology
Collision Repair Technology is a NATEF Certified program. We recently acquired a state-of-the-art paint booth and are on the cutting edge of paint training with our new spray paint simulator. The simulator helps us to operate a more "green" training program while still giving students highly technical training. We teach the I-Car Curriculum, where students can earn I-Car certifications, and learn all aspects of the collision repair industry. While in this course, students can earn college credits with Washtenaw Community College and Baker College as well as a senior math credit and applied arts credits.

Culinary Arts
Culinary Arts is a state approved training program. This is a two-year course that will introduce students to all aspects of the hospitality industry, with the focus on culinary arts. Some of the areas covered are sanitation and safety, baking and pastries, knife skills, culinary math, hot food production, menu development and much more. While in this program, students can earn up to nine college credits with Washtenaw Community College, as well as senior math and applied arts credits.
Certified Nurse Assistant Program (1 semester program)
Students enrolled in this semester-long program are eligible to earn 6 credits. Students successfully completing the 6 credits will earn a Certificate in Nursing Assistant Skills Training (CCNAST), which provides eligibility to sit for the State of Michigan test to become a Certified Nursing Assistant (CNA). Students will also complete the American Red Cross CPR/AED first-aid training. The curriculum will include hands-on activities in a lab setting as well as clinical training at a facility in the local community. The CNA is a required pre-requisite for students wishing to apply to the Registered Nursing program at Washtenaw Community College.

Days/Times:
Monday through Friday
Morning Session – 2.5 hours/day (8-10:30am)

Admission Criteria:
WCC application for admission includes: basic skills assessment using ACT, SAT, and/or COMPASS scores; Minimum of Academic Level 3 in Reading (ACT Reading -12) and Writing (ACT-14); 250 word statement from student on reason(s) for wanting to complete Nursing Assistant Skills Training Certificate; Two letters of reference – one from a high school teacher, and one from the high school counselor. Student must be 16-3/4 years of age at start of program. Student must pass criminal background check to begin program. Student will interview with Dean of Student Diversity & Inclusion to evaluate student’s maturity level.

Enrollment Criteria:
Required attendance at a mandatory meeting for student and parent/guardian detailing program requirements. Regular attendance, academic achievement, and mature/appropriate behavior required for continued enrollment in the program. Students not maintaining a minimum grade of 2.0 GPA will be removed from the program. Student must pass lecture portion of class to continue to lab component, and then pass lab component to continue to clinical portion of course. Inappropriate behavior (including use of cell phone in lab and/or clinical portion of course) will result in immediate removal from the program.

Program Capacity:
48 students/year
24 students Fall semester; 24 students Winter semester (semesters scheduled to align with high school calendar)

Course Sequencing:
Senior or Junior Year (students must be minimum of 16-3/4 years of age at start of program)

- HSC 100 – Basic Nursing Assistant Skills (4 credits)
- HSC 131 – CPR/AED for the Professional Rescuer and First Aid (1 credit)
- ACS 101 – Academic Skills Seminar (1 credit)

One semester program – student may take Fall or Winter semester
Program includes CPR and health based reading instruction
- Minimum enrollment required 12 students/semester
- Maximum enrollment 24 students/semester

Offered at Ypsilanti Community High School campus (in old RCTC wing)
Construction Technology

Construction Management Career Program – (2 year program – scheduled 3 semesters/year)
The Construction Technology program prepares students for entry-level jobs in a broad range of careers in the construction industry, where they need an understanding of building systems, the safe use of tools and equipment, materials, and the vocabulary of the field. Students enrolled in this program are eligible to earn 6 credits per semester in courses aligned with the Construction Technology curriculum. An academic year will consist of 39 weeks of instruction – 15 weeks in Fall semester and 12 weeks in each of the Winter and Spring/Summer semesters.

Students successfully completing the six semesters of their junior and senior years of high school will earn 36 college credits, which include a college certificate in Construction Technology I. Completion of this certificate will allow the student to enroll in the Advanced Certificate – Construction Technology II and/or the Associate Degree in Construction Technology after graduating from high school. Students completing the Construction Technology I certificate will be nationally certified through the National Center for Construction Education and Research (NCCER). The students also have the opportunity to earn a 10-hour OSHA card during the program.

Students will be enrolled fall, winter, and spring/summer semesters for each academic year. The curriculum will include hands-on activities in a lab setting as well as on-the-job training at sites in the local community. In addition to the construction technology curriculum, the program also includes instruction in reading, writing, and math aligned with the construction industry. The skills needed for college and career readiness will also be emphasized throughout the program.

Days/Times (subject to change):
- Monday through Friday
  - Morning Session – 2.5 hours /day for juniors
  - Afternoon Session – 2.5 hours /day for seniors

Admission Criteria:
- WCC application for admission including basic skills assessment using ACT, SAT, and/or COMPASS scores
- 250 word statement from student on reason(s) for wanting to complete construction technology program
- Two letters of reference (at least one from the student’s high school; no letters from family members)
- Student interview with Dean of Student Diversity & Inclusion to evaluate student’s maturity level

Enrollment Criteria:
- Mandatory meeting for student and parent/guardian detailing program requirements
- Regular attendance, academic achievement, and mature/appropriate behavior required for continued enrollment in the program. Student’s not maintaining minimum 2.0 GPA will be removed from the program. Inappropriate behavior will result in immediate removal from the program.

Program Capacity:
- 30 students/year
- 15 juniors in morning session; 15 seniors in afternoon session
- Minimum 12 students needed for am or pm session to run
Program runs on WCC campus

Course Sequencing:

Junior Year
- Fall – CON 055 (6 credits)
- Winter – CON 064 (6 credits)
- Spring/Summer (ends in mid-June) – CON 076 (3 credits)
Total Credits – 15

Senior Year
- Fall – CON 083 (6 credits)
- Winter – CON 094 (6 credits)
- Spring/Summer (ends in mid-June) – CON 095 (3 credits)
Total Credits – 15

Courses running in Fall and Winter semester include contextualized reading, writing, and math instruction supporting the construction curriculum.

Computer Systems Technology

Computer Systems Technology (enrollment in this program will begin Fall 2018)
This program will be a part of the YCHS STEMM Middle College. Students successfully completing the four (4) semesters program will receive 16-19 college credits and will be prepared to take the Computer Technology Industry Association’s (Comp TIA) A+ Certification Examination. Students wishing to enroll in this program must be enrolled in the YCHS STEMM Middle College, have completed their junior year and must have taken and passed the following courses:

STEMM Core-Curriculum:
- Introduction to Engineering (1 semester)
- Engineering Applications (1 semester)
- Introduction to Manufacturing
- Manufacturing Science
- Biology
- Chemistry
- Physics (or Physics of Robotics)
- Art I (or equivalent Art Course)
- PE / Health
- Spanish I &II (or two consecutive years of another world language)
- ELA 9, 10 &11
- American History
- World History
- Economics (1 semester)
- Government (1 semester)
- Algebra I
- Algebra II
- Geometry
- Trig & Probability (or Pre-Calculus)

3 or more of the following STEMM Electives:
- Creative Engineering or Sustainable Design
- CAD / 3D Printing
Elective Literature Course (Detective Fiction or Science Fiction and Fantasy Literature)
Technical Writing
Environmental Science or Forensics
Statistics
Total of 25 credits in the STEMM Middle College or other accredited STEM Program must be taken/passed prior to enrollment into the program.

**Engineering Design & Technology**

**Engineering & Design Technology (enrollment in this program will begin Fall 2016)**
This program will be a part of the YCHS STEMM Middle College. Students successfully completing the four (4) semesters program will receive 19-20 college credits and will earn a Certification in Engineering & Design Technologies. Students wishing to enroll in this program must be enrolled in the YCHS STEMM Middle College, have completed their junior year and must have taken and passed the following courses:

**STEMM Core-Curriculum:**
- Introduction to Engineering
- Introduction to Manufacturing
- Manufacturing Science
- Biology
- Chemistry
- Physics (or Physics of Robotics)
- Art I (or equivalent Art Course)
- PE / Health
- Spanish I &II (or two consecutive years of another world language)
- ELA 9, 10 &11
- American History
- World History
- Economics (1 semester)
- Government (1 semester)
- Algebra I
- Algebra II
- Geometry
- Trig/Functions or Pre-Calculus

3 or more of the following STEMM Electives:
- Creative Engineering
- Sustainable Design
- CAD / 3D Printing
- Technical Writing
- Forensics
- Statistics

Total of 23 credits in the STEMM Middle College or other accredited STEM Program must be taken/passed prior to enrollment into the program.
Ypsilanti STEMM Middle College
2017-18 Course Guidebook

STEMM Middle College Planning Guide

Dual Enrollment Plans – which dual enrollment opportunity do you plan to pursue?

☐ Automotive Technology
☐ Collision Repair Technology
☐ Culinary Arts
☐ Health Care Foundations
☐ Construction Technology
☐ Computer Systems Technology
☐ Engineering Design & Technology
☐ Traditional Dual Enrollment

For all options above a STEMM Middle College experience will include the following courses taken as a freshman and sophomore (for Junior, Senior and Year 5 ECA programs see specific program of study supplement):

**Typical First Year Student**

☐ 1 Elective (chose 1)
  ☐ Band
  ☐ Choir
  ☐ Drama
  ☐ CAD / 3 D Printing
☐ Introduction to Engineering
☐ Biology
☐ STEMM Math
☐ STEMM ELA
☐ STEMM US History
☐ STEMM Speech/Drama
☐ Physical Education (1 semester)
☐ Health (1 semester)

**Typical Second Year Student**

☐ 2 Electives
☐ Introduction to Manufacturing
☐ Physics
☐ STEMM Math 2
☐ STEMM ELA 10
☐ World History and Geography
☐ STEMM Spanish I

For Junior, Senior and Year 5 Middle College planning, use the programing guide supplement (in development)
for the specific program of study you wish to pursue.