Ravenna High School

2022-2023 School Year

Course Offerings

2766 South Ravenna Rd. Ravenna, MI 49451 ravennaschools.org

The selection of an academic schedule for the next school year is extremely important. The staff at Ravenna High School has found that careful planning by students and parents, coupled with guidance from school staff members has a positive effect on academic success. Students must give careful consideration to their course choices.

Possible Semester Credits Earned: 3.5 Possible Credits Annually: 7
Possible Total Graduation Credits Earned: 28 Required Graduation Credits: 25

Graduation Requirements

***Class of 2023 will not be required to complete College Career Readiness**

Department	Course	Credit	Grade
English (4 credits)	English 9 English 10 English 11 English 12 or Honors English 12	1 1 1 1	9 10 11 12
Mathematics (4 credits) *Must include Algebra I, Geometry, Algebra II, & Senior Yr. Math	Appropriate HS Math Course Appropriate HS Math Course Appropriate HS Math Course Appropriate HS Math Course	1 1 1 1	9 10 11 12
Science (3 credits)	Earth Science Biology Chemistry(.5)/Physics(.5) or Honors Chemistry and Honors Physics	1 1 1	9 10 11
Social Studies (3 credits)	World History American History Civics Economics	1 1 .5 .5	9 10 11 11
Arts (1 credit)	Visual or Performing or Applied Arts or Vocational Education	1	Open
Health (.5 credit)	Health	.5	9
Physical Education (.5 credit)	Any HS Physical Education Course	.5	10
School and Career Preparation (2 credits)	Freshman Focus Career College Readiness Personal Management	.5 .5 1	9 10 12
World Language (2 credits)	Spanish	2	Open

*All students must take the MME and SAT in 11th Grade

Educational Development Plans

Every student, grades 7th through 12th, will develop and maintain an Educational Development Plan (EDP) through an internet-based career exploration tool. A countywide portal system (Career Cruising/Xello) will be offered to districts allowing students, parents, and counselors an easy-to-use web based, personalized tool to ensure that each step in the process of career exploration and applying for college is successful. This will help students to understand their skills, values, career choices and college training options. Students will be able to identify his or her career interests, skills, abilities, and learning styles. They will access career profiles through up-to-date information about hundreds of different occupations, including direct links between careers and related college programs that includes interviews with real people in each occupation, which add depth and realism to career profiles. Career Cruising will also provide comprehensive college and financial aid information, with a number of useful search tools to help your child find the right college and the right scholarships. This online tool also includes information on employment and resume building. Our students will have an all inclusive experience as we prepare them to be College, Career and Life ready.

Class Rank

Class rank is determined at the end of each semester using the student's grade point average. The ranking is cumulative and includes all high school semester final grades and averages. A weighted scale is utilized in determining class rank, including Honors and AP Courses (Refer to Credit Requirements and Course Offerings).

Collegiate Academic Eligibility

High school athletes who want to qualify for NCAA college athletics and plan to enter college in the fall of 2016 or later must complete at least 16 core academic core course units. Ten (10) of the 16 core courses must be completed before senior year, and 7 of the 10 core courses must be in English, Math and Science. The minimum core-course GPA is 2.3. Additional college test score requirements also apply. For complete information, go to the NCAA website at: www.eligibilitycenter.org.

Credit Requirements

All students are to be "full time" students, enrolled in a minimum of 7 classes per semester.

Exceptions must be approved in advance by the building principal. CTC students are required to be enrolled in 3 classes at RHS in conjunction with CTC.

Home School Credits: Placement exams will be used to establish credit for prior work.

Grading Scale and GPA

Weighted Grades: Grades earned in classes designated as Honors or AP are weighted. *AP courses and Honors courses may be taken online. Honors courses available in person when applicable. See catalog link listed in course descriptions below.

Percentage	Letter Grade Grade Point	Weighted
100-94	A 4.0	4.5
93-90	A- 3.67	4.17
89-87	B+ 3.33	3.83
86-83	B 3	3.5
82-80	B- 2.67	3.17
79-77	C+ 2.33	2.83
77-73	C 2	2.5
72-70	C- 1.67	2.17
69-67	D+ 1.33	1.83
66-63	D 1	1.5
62-60	D- 0.67	1.17
59-0	F 0	0

Dual Enrollment

On April 1, 1996, Public Act 160 created the Post Secondary Enrollment Options Act, which allows school districts to assist students in paying for tuition and fees for course work at higher institutions of learning in Michigan if the following conditions are met:

Assessment	Content Area Minimum Qualifying Score
PSAT/NMSQT 9/10/11	Critical Reading - Evidence-Based Reading and Writing 460 Mathematics 510
SAT	Critical Reading - Evidence-Based Reading and Writing 480 Mathematics 530

As cited from the Michigan Department of Education Pupil Accounting Manual: Eligible students are enrolled in grades 9 through 12 during the year of the postsecondary dual enrollment. If the pupil is

seeking postsecondary course enrollment, the pupil must achieve a qualifying score in all subject areas on the Michigan Merit Exam (MME) or another college-ready assessment. If a qualifying score is not achieved, the pupil is limited to enrollment in postsecondary courses in the subject area(s) for which a qualifying score has been achieved, or the pupil can enroll in courses such as computer science, foreign languages not offered by the local school district, and fine arts courses as permitted by the school district at a postsecondary institution. The postsecondary course(s) must be academic in nature or applicable to career preparation. The postsecondary course(s) must apply toward the satisfaction of certificate, degree, or program completion requirements, and may not be in the subject areas of physical education, theology, divinity, or religious education. Hobby craft and recreational courses are not eligible under the dual enrollment acts.The post secondary course must also be a course not offered by the local school district, or if offered, is not available to the student due to a scheduling conflict (as determined by the local district). Questions regarding classification of courses as academic or activity are left to the discretion of the district and should take into account the interests and ambitions of the student. A student may enroll in more than one post secondary course, but must also be concurrently enrolled in at least one high school course. Your Dual Enrollment Class must not conflict with your scheduled high school class or class(es). Keep this in mind in regards to travel time. If a time conflict occurs, your high school class(es) takes precedent and you will not be allowed to dual enroll. School districts are required to pay the lesser of: (a) the actual charge for tuition, mandatory course fees, materials fees and registration fees; or (b) the state portion of the student's foundation allowance, adjusted to the proportion of the school year they attend the post secondary institution. Students are responsible for purchasing the text(s) associated with the dual enrollment course. Students should be aware that there could be some costs involved in taking a dual enrollment class due to rising tuition and fee costs at the college. An estimate will be provided at the time of registration for the dual enrollment class. To apply for dual enrollment, a student must fill out an application, have been admitted to the post secondary institution offering the dual enrollment class, and complete the proper dual enrollment form supplied by the high school prior to the beginning of class. In order for the district to pay for the course(s), and related fees associated with the course(s), the student must:

- Earn a passing grade for the dual enrolled class
- Not withdraw from the dual enrolled class
- Inform the counselor if he/she desires not to have the dual enrolled course grade(s) listed on the high school transcript. Any changes in dual enrollment courses must be approved by the counselor and building principal prior to the beginning of the college semester. Without this approval, the student assumes the financial responsibility for the course(s). Any student who does not have a class during the school day because of Dual Enrollment must remain in the Media Center during that period, cannot leave the building (unless there is a pre-approved appropriate reason), and must be working on content that is academic in nature.

Early College

Early College students will be invited to walk with their graduating class, but will not receive a diploma from Ravenna High School until their 5th year has been completed. Because college level credit is being earned, Early College students will not be considered for top honors in class rankings. RHS will pay for tuition and mandatory course fees, including technology fees, material fees (including textbooks) and registration fees. Due to the school paying for material fees, all textbooks should be

returned to the school after use. If a student fails a college course, they will reimburse the district for the cost of tuition and any related fees. Any student who does not have a class during the school day because of Dual Enrollment must remain in the Media Center during that period, cannot leave the building (unless there is a pre-approved appropriate reason), and must be working on content that is academic in nature.

Early College Scheduling:

11th grade students will enroll in three courses at the high school along with college courses over two semesters totaling 13 credit hours. Courses required for graduation will make up most of the high school schedule.

12th grade year will have students enrolled in two high school courses along with college courses totaling 22 credit hours over two semesters. Once again, the majority of courses taken at the high school will meet graduation requirements.

Summer - Students will need to take 3 college credit hours in the summer. This can be done after the junior or senior year. The thirteenth year will have students enrolled in a senior math class, which will be taken at MCC along with the balance of college credit hours needed to complete the Associates Degree. *The number of courses taken may vary depending on each individual's programming.

Muskegon Area Career Tech Center (CTC)

The Career Technical Center consortium is a partnership of Muskegon area school districts. Its purpose is to offer specialized "CTC" education courses. Students may earn 4 credits upon successful completion of a full year CTC class. Please note, not all classes are available each year. Students who desire to take a CTC class must take into account the impact on class schedule in terms of graduation requirements. A student's CTC/Ravenna schedule includes 1st - 4th hours at the CTC and 5th - 7th hours at Ravenna High School. Students who choose to attend Nuvo Cosmetology will be required to provide their own transportation to and from Nuvo. The school district will not provide any transportation funding for those students. Transportation is provided for students who attend the Muskegon Area Career Tech Center.

Ravenna High School Course Offerings and Information

ENGLISH

Graduation Requirements: 4.0 credits (8 semesters) of English

English 9 Grade: 9 Credit: 1 (.5 per semester)

English 9 is the first of four English classes that are required for graduation. In English 9, students will experience a wide variety of literature through short stories, non-fiction, poetry, drama, and novels. In addition to reading, students will respond to literature through writing. Students will also spend time developing their writing skills through essays and projects. Throughout the year, there will be a variety of grammar units as well as daily warm-ups. Students also spend time preparing for the SAT/MME test which they will take in 11th grade.

English 10 Grade: 10 Credit: 1 (.5 per semester)

English 10 is the second of the high school level Language Arts courses required for graduation. Students continue to explore various forms of literature including short stories, essays, autobiographies, biographies, novels, and poetry. Students write often, making connections with their writing and the literature they have read. They will also continue to develop their writing skills through the study of grammar, daily oral language, and vocabulary. Students will also prepare for and practice skills needed for the SAT/MME test that will be given during the 11th grade.

English 11 Grade: 11 Credit: 1 (.5 per semester)

English 11 is the third class of the four that are required for graduation from Ravenna High School. English 11 is the study of a variety of American authors and literature. It involves extensive reading and critical thinking. Within the literature units, students will discuss and understand the historical, political and social influence of the novels in direct relationship with society. In addition to reading, students will respond and react to literature through writing. Students will also spend time developing personal writing skills through essays and projects. Throughout the year there will also be a variety of grammar units, as well as daily oral language lessons. Time preparing for the SAT/MME is also focused throughout the year.

English 12 Grade 12 Credit: 1 (.5 per semester)

Senior English is designed to enhance student competency in reading comprehension and writing skills. Students will experience a wide variety of literature through short stories, non-fiction, novels, and films. Students will write in response to literature as well as completing expository and creative writing. Students will also write research papers using both MLA and APA formats. Students will study advanced vocabulary and incorporate it into their writing. Students will leave the course with a foundation in the skills needed to further their education and careers.

Honors English 12 Grade: 12 Credit: 1 (.5 per semester)

Prerequisite: 75% or better in 2nd semester English 11 plus teacher approval.

College Writing is a senior elective, which is strongly suggested for all students planning on attending college or receiving other advanced schooling. It is designed to enhance student competency in the use of standard written English. The year is spent writing numerous papers. Argumentative, personal narrative, compare/contrast, descriptive, creative, and literary analysis papers are a few of the types of writings addressed. During the course, students will also write research papers using both MLA and APA formats. Strict attention is paid throughout the year to proofreading for grammatical and technical errors. Students learn to peer edit and to accept constructive criticism. Students will study advanced vocabulary and incorporate it into their writing. By the conclusion of College Writing, students will leave the course with the writing skills needed to successfully further their education and careers.

Film as Lit Grade: 10 - 12 Credit: .5 Credit

This course will apply basic elements of literature to film. Elements of literature applied to film include plot, characterization, setting, theme, irony, suspense, foreshadowing, symbolism, point of view, and more. Film genres will include action, adventure, comedy, crime/gangster, drama, epic/historical, horror, musical/dance, science fiction, war, western, animation, documentary, silent, and subtitled films. In addition, genres will be examined specifically for their characteristics ranging from classic films to modern films within that specific genre. Elements of film will also be studied throughout the course including types of shots, types of angles, camera movement, scene-to-scene transitions, music and sound, and more. Discussion and critical analysis of film will be a focus. In addition, students will create media presentations demonstrating the various literary, film, and genre elements studied throughout the course.

MATHEMATICS

Graduation Requirements: 4 credits of Math (Algebra 1, Geometry, Algebra II, and Senior Year Math)

Algebra 1 Grade: 9 Credit: 1 (.5 per semester)

Prerequisite: Pre-Algebra and the recommendation of the current math teacher.

This two-semester course covers all of the ideas usually associated with first year algebra. Variables, expressions, functions, and graphs are used to supplement and highlight the study of polynomials, factoring, linear and quadratic equations, and inequalities. Course content includes: Variable, Function Patterns, and Graphs, Rational Numbers, Solving Equations and Inequalities, Graphs and Functions, Linear Equations and their Graphs, Systems of Equations and Inequalities, Exponents and Exponential Functions, Polynomials and Factoring, Quadratic Equations and Functions, Radical Expressions and Equations, Rational Expressions and Functions

Geometry Grade(s): 9 - 10 Credit: 1 (.5 per semester)

Prerequisite: Algebra 1

This two-semester course covers the basic concepts of geometric figures and their applications. Some topics include parallel and perpendicular lines, angles, polygons, solids, area, surface area, volume, and trigonometry. Students are introduced to the concepts of proof and construction. Students will also investigate new geometric concepts such as transformations, similarity, and circles. Course content includes: Tools of Geometry, Reasoning and Proof, Parallel and Perpendicular Lines, Congruent Triangles, Relationships Within Triangles, Quadrilaterals, Similarity, Right Triangles and Trigonometry, Transformations, Surface Area and Volume, Circles

Algebra 2 Grade: 10 - 11 Credit: 1 (.5 per semester)

Prerequisite: Geometry and the recommendation of the current math teacher.

This two-semester course emphasizes competence with algebraic expressions and forms, especially linear and quadratic forms, systems, polynomials, and functions based on these concepts. Students will gain competence in powers & roots, exponential and logarithmic functions, sequences and series, and probability and statistics. Course content includes: Tools of Algebra, Functions, Equations and Graphs, Linear Systems, Quadratic Equations and Functions, Polynomials, Radical Functions and Rational Exponents, Exponential and Logarithmic Functions, Rational Functions, Quadratic Relations, Sequences and Series, Probability and Statistics

Pre-Calculus Grade: 11 - 12 Credit: 1 (.5 per semester)

Prerequisite: The recommendation of their Algebra 2 teacher.

Pre-calculus is a two-semester course designed to build a strong foundation for Calculus. The course encourages students to develop a firm grasp of the underlying concepts while using Algebra as a tool for solving real-life problems. The course invites discovery and exploration, while the integrated technology and consistent problem-solving strategies help the student develop strong Pre-calculus skills.

Course content includes: Functions and Graphs, Polynomial, Power and Rational Functions, Exponential, Logistic and Logarithmic Functions, Systems and Matrices, Trigonometric Functions, Analytic Trigonometry, Vectors, Parametric Equations, and Polar Equations, Analytic Geometry in Two and Three Dimensions, and Discrete Mathematics.

Accounting Grade: 11 - 12 Credit: 1 (.5 per semester)

Individuals who deal with any phase of business can benefit from an understanding of basic accounting principles. Students planning to study business topics in college will find this course helpful. Students planning to operate their own business will find this course a must. Students will learn how to work with journals, ledgers, balance sheets, income statements, and post-closing trial balances for business owners via hard copy, and online applications. Students will assume the role of an accountant for several fictional businesses. This course integrates business, math, language arts, and computer technology. Seniors may count the successful

completion of Accounting as a math credit for graduation requirements. This is a full year course.

SCIENCE

Graduation Requirements: 3.0 credits
C/O 2023 (Earth, Bio, Chem/Phys)
C/O 2022 (Earth, Bio, Chem/Phys)
C/O 2021 (Physical Sci, Bio, Chem)

Earth Science Grade: 9 Credit: 1 (.5 per semester)
This is a course to satisfy the science requirement of the freshman year and for graduation. Earth Science offers a focused curriculum that explores the three disciplinary core ideas in the Earth and Space Sciences. The first core idea, Earth's Place in the Universe, which helps students formulate an answer to the question: "What is the universe, and what is Earth's place in it?" is broken down into three sub-ideas:the universe and its stars, Earth and the solar system and the history of planet Earth. The second core idea, Earth's Systems, which helps students formulate an answer to the question: "How and why is Earth constantly changing?" is broken down into five sub-ideas: Earth materials and systems,plate tectonics and large-scale system interactions, the roles of water in Earth's surface processes, weather and climate, and biogeology. The third core idea, Earth and Human Activity, helps students formulate an answer to the question: "How do Earth's surface processes and human activities affect each other?" is broken down into four sub-ideas: natural resources, natural hazards, human impact on Earth systems, and global climate change. Teacher-scored labs encourage students to develop models, plan and carry out investigations, analyze and interpret data, and engage in argument; and to use these practices to demonstrate understanding of the core ideas.

Biology Grade: 10 Credit: 1 (.5 per semester)
The primary goal of Biology is to develop an understanding and appreciation of the world of living things. Lessons will be designed around the NGSS science and engineering practices. Much work will be done in groups and require students to problem solve and design labs based on questions posed to them. Whole group discussion will occur often to share data and conclusions from work done. The topics that will be explored in the year-long course include the following: structure and function of living things; matter and energy in organisms and ecosystems; interdependent relationships in ecosystems; inheritance and variation of traits in organisms; natural selection and Evolution.

Chem / Phys Grade: 11 - 12 Credit 1 (.5 per semester)
Chem / Phys is a semester yearlong course that includes a semester of introductory chemistry and a semester of introductory physics. Chemistry is a concept based, rather than math based, chemistry that involves the students in daily chemistry activities. Students complete a daily lesson or activity in class and then use the companion textbook to support what they have learned in class that day. Daily lessons are reinforced throughout the year to help students master the concepts. Students will study: Matter, Atomic Structure and Bonding, the Periodic Table, Molecular Structure and Properties and Phase Changes. Physics will involve students with the physics found in daily life around them. Students will be expected to solve problems using basic algebra. Students will also participate in a STEM project during the semester. Topics of study include: Motion, Forces and Newton's Laws, Energy and Work, Mechanical and Electromagnetic waves.

Honors Chemistry Grade: 11 - 12 Credit: 1 (.5 per semester)
This course involves the study of matter and how matter behaves when it contacts other matter. Observation, experimentation, and

the scientific method are important concepts covered in this course. Students are required to perform experiments, do projects, and present the material in the proper scientific manner using proper symbols and measurements. The proper use of laboratory instruments and the accurate reporting of investigating research is stressed. All areas of matter classification and the identification of chemical and physical properties will be covered in this course. The ability to solve equations with one unknown is essential. The ability to deal with special relationships and shapes in a three-dimensional manner is also stressed. An outside project and individual research is also required in this course. College preparatory students are strongly urged to take this course. Students will: Use the International Systems in science, Describe matters and its properties and changes, Use chemical formulas and equations to describe quantitative relationships, Apply the scientific method to chemical and physical changes and structures, Use the periodic relationships to describe atomic structures and electron clouds to a degree of probability, Test for types of chemical bonding and other molecular structures, Relate kinetic molecular theory to the structure of the states of matter and changes of those states, Relate Ions and their applications to everyday life and body activity.

Honors Physics Grade: 11 - 12 Credit: 1 (.5 per semester)

Prerequisite: 2 credits of Science (C or better), Algebra 1 and Geometry or instructor's approval.

The use of mathematics to predict energy transfer, effects of the transfer and the origin of the energy will be the main subjects of study. Students are required to perform experiments, do projects, and present the material in the proper scientific manner using proper symbols and measurements. The proper use of laboratory instruments and the accurate reporting of investigating research is stressed. The ability to solve equations with one unknown is essential. An outside project and individual research is also required in this course.The college bound student and many tech school bound students should be enrolled in this class that combines science and mathematics.

Students will: Solve problems using the SI system, Calculate the motion of objects in both 2-D and 3-D motion, Calculate the mechanical energy of diverse systems, Explore characteristics and energy of mechanical and electromagnetic waves, Explore basics of electrical systems and calculate the energy transfer in circuits, Organize and observe data from a laboratory situations

Anatomy & Physiology Grade: 11 - 12 Credit: 1 (.5 per semester)

Prerequisite: "C" or better in Biology

Anatomy/Physiology is a year-long course offered to 11th /12th grade students. The overall goals of the class are to begin to understand the various levels within the body, how all work together, and to develop an awareness of what happens when the systems do not function properly. Students will work individually and in groups. Active participation is very important in class, as many lessons require discussion and activities. At times these activities will include dissections. Typically, the dissections will occur after the students have been introduced to the major organ systems. Students will study: Organization and Orientation of the body, Tissues, Major Body Systems (skeletal, muscular, cardiovascular, digestive, respiratory, nervous, and excretory)

AGRISCIENCE COURSES:

All students must first complete both plant and animal science before moving on to other agriscience courses, due to state funding restrictions. Passing Animal Science & Plant Science with a C or above makes a student a "completer" in career and technical education. Being a completer allows you to earn six FREE credits at Michigan State University, if you go on to earn your State FFA Degree through the FFA.

In every agriscience course, each student will continue his/her training in record keeping, through the development of a Supervised Agricultural Experience Program or SAE and be provided an opportunity to participate in leadership and skill contests. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts. Students will be encouraged to participate in the Ravenna FFA Chapter of the National FFA Organization. The FFA is an organization developed solely for students of Agricultural Education classes. FFA is an integral part of this class all students join. Ravenna FFA pays all dues for every student in class. FFA will be discussed further in class.

Plant Science Grade: 9 - 12 Credit: 1 Science Credit

The *Plant Science* course will expose students to the world of agriculture, plant science, and career options. Students will have experiences in various plant science concepts through exciting "hands-on" activities, projects, and problems. Student experiences will include the study of plant anatomy and physiology, classification, and the fundamentals of production and harvesting. Students will learn how to apply scientific knowledge and skills to use plants effectively for agricultural and horticultural production. Students will discover the value of plant production and its impact on the individual, the local, and the global economy. Lessons throughout the course will provide an overview of the field of agricultural science with a foundation in plant science. These lessons include working in teams and exploring hands-on projects. Students will work on major projects and problems similar to those that plant science specialists, such as horticulturalists, agronomists, greenhouse and nursery managers, and plant research specialists, face in their respective careers.

Animal Science Grade: 9 - 12 Credit: 1 Science Credit

The major focus of the *Animal Science* course is to expose students to experiences in various animal science concepts with exciting "hands-on" activities, projects, and problems. The student will develop a basic understanding of the role of livestock in agriculture (U.S. and global). The course will introduce basic concepts and principles of animal nutrition, growth, health, behavior, reproduction, and genetics, as well as practical commercial applications, such as ration formulation, disease prevention, artificial insemination, genetic selection, and crossbreeding systems. Labs will provide opportunities to gain practical knowledge and to better understand the lecture material.

Agribusiness Management Grades: 10 - 12 Credit: .5 Elective Credit Prerequisites: Animal & Plant Science

The *Agribusiness* course will provide students with the basic knowledge and skills necessary to manage personal finances and develop into a successful entrepreneur and/or businessperson. Instructional units include: business ownership types, starting an agribusiness, managing and operating an agribusiness, financing an agribusiness, managing personal finances, record keeping and financial management of an agribusiness, local, state, and federal taxes, agricultural law, marketing and sales techniques, and developing employability skills. Student skills will be enhanced in math, reading comprehension, and writing through agribusiness applications. Improving computer and workplace skills will be a focus.

Agricultural Leadership and Service Learning Grades: 10 - 12 Credit: .5 Elective Credit

Prerequisites: Animal Science & Plant Science

This class is designed to discuss leadership and careers. We will look at the skills necessary to be a leader, how to work as a team and manage people. Topics will include team building exercises, personality profiles, career interest profiling, parliamentary procedure, and specific leadership qualities, with others to be developed from student interest. This class will be highly project-oriented and will include writing assignments, team and individual projects, and journals. All information will be presented in terms of how it affects you as a student, an individual, and as a future leader in society. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

Food Science Grades: 10 - 12 Credit: .5 Elective Credit Prerequisites: Animal Science & Plant Science

In *Food Science*, you will become familiar with the basic types of processed foods available to consumers, the basic processes utilized to preserve these foods and the fundamental scientific principles behind these processes. You will understand the main concepts of quality control for safety and quality in the processing of foods. You will also become familiar with the vocabulary of food technology in order to better understand and evaluate the safety, advertising, quality and marketing of processed foods. Students will also learn appropriate hand washing, knife safety and how to operate basic kitchen appliances.

Agricultural Communications Grades: 10 - 12 Credit: .5 Elective Credit Prereqs: Animal & Plant Science

The *Agricultural Communications* course will expose students to a wide variety of agricultural communications career options. Students will have experiences in various communications concepts through exciting "hands-on" activities, projects, and problems, all through the lens of the agricultural industry. Students will discover the value of the agricultural industry and its impact on the

individual, the local, and the global economy. Lessons throughout the course will provide an overview of the field of written, spoken and electronic communications with a foundation in agriculture.

Advanced Agriscience Independent Study Grade: 11 - 12 Credit: .5-1 Credit Prerequisites: Animal & Plant Science and teacher approval

These classes are designed for students who have successfully completed the available agriscience classes, are self-motivated and are capable of working independently. Students will work via an online program provided through iCEV Multimedia, with grades calculated by their online work being completed by the due dates. Courses available include, but are not limited to: Veterinary Science, Equine Science, Crop Science, Wildlife, Fisheries & Ecology Management, Food Processing, and more. Many of these courses offer industry level certification for the students to add to their portfolios.

SOCIAL STUDIES

Graduation Requirements: 3.0 credits (World History, American History, Civics/Economics)

United States History Grade: 10 Credit: 1 (.5 per semester)

This course includes a study of the development of the United States from the Civil War period to the present time. Through this study students will become more aware of how important events and decisions of the past have contributed to the growth of our nation. It is hoped that with this understanding of the past, students will be better able to make the civic decisions that will confront them as they enter the world of tomorrow. Emphasis will be placed on the evolution and implementation of core democratic values throughout the history of the United States.

Civics Grade: 11 Credit: .5

The purpose and objective of American Government is to introduce students to the principles of our government at all levels. The focus of this course involves analyzing the U.S. Constitution and its amendments. Current events that investigate foreign and domestic policy issues are incorporated into this course. The political knowledge students will gain should help them understand their role, function, and responsibility in the governmental system.

Students will: Better understand the right and responsibilities of citizenship in a multi-cultural interdependent global society, Understand the purpose, role, structure and functions of government, Become informed about responsible personal conduct of all citizens, in accordance with the rule of law in a constitutional democracy, Construct meaning by reading, and by gathering, interpreting, analyzing, synthesizing and evaluating information, Use visual aids, media and technology, Develop informed and reasoned positions on public issues.

To participate effectively, American citizens need intellectual and participatory skills, as well as knowledge about their government and society. Acquisition of civic knowledge and skills makes possible a reasoned commitment to those fundamental values and principles essential to the preservation and improvement of American constitutional democracy. Ravenna students will be required to learn all Michigan Department of Education High School Social Studies Content.

Economics Grade: 11 Credit: .5 Credit

Economics is a required course designed to help students learn about their role as citizens, producers, and consumers in the American Free Enterprise System. Understanding economics – what some people call “economic literacy” – is becoming essential for citizens in our national and increasingly interconnected world economy. Increasingly, productive members of society must be able to identify, analyze, and evaluate the causes and consequences of individual economic decisions and public policy including issues raised by constraints imposed by scarcity, how economies and markets work, and the benefits and costs of economic interaction and interdependence. Such literacy includes analysis, reasoning, problem solving, and decision-making that help people function as consumers, producers, savers, investors, and responsible citizens. Ravenna students will be required to learn all Michigan Department of Education High School Social Studies Content Expectations for Economics.

Students will: Demonstrate knowledge of the six fundamental concepts of economics (scarcity, opportunity, cost, productivity,

economic systems, economic institutions and incentives, exchange, money and interdependence) as applied to a free enterprise economic system, Demonstrate knowledge of basic concepts of economics as applied to personal and public decision making in a market economy, Apply critical thinking skills to the comprehension of message relating to economic concepts, Construct and draw inferences from charts, tables, and graphs that summarize data from real-world situations.

Psychology Grade: 10 - 12 Credit: 1 (.5 per semester)
Psychology is a two semester course where students will explain sensation and perception in relationship to human behavior, understand the major elements and theories pertaining to learning, thinking and intelligence, understand the relationship between human behavior and the biological aspects of the brain and the endocrine system, understand the major theories pertaining to motivation, understand the development of personality, and research and write a paper on a topic of psychological significance.

World History Grade: 9 - 12 Credit: 1 (.5 per semester)
This course includes a wide variety of topics that introduces students to when the world began to expand and interact globally. Topics include global expansion, cultural interactions, global revolutions, industrialization, and global conflicts and their effects. Through this course, students will become more aware of how important historical events and decisions have contributed to the growth of our world. Students will be challenged to decide from different perspectives "Why Study History?" It is hoped that with this understanding of the past, students will be better able to make the informed decisions , studying history, that will confront them as they enter the world of tomorrow. Students will be able to understand and connect past and some modern world studies, recognize diversity of individuals, and foreign cultures. Learn to access, read, comprehend, and utilize meaningful information through differentiated instruction, classroom materials, and technology to explain how events have causes and consequences in certain regions and the world.

ART

Graduation Requirements: 1.0 credit

Explorations in Art Grade: 9 – 12 Credit: 1 (.5 per semester)
Students will learn how to use a variety of materials and techniques to create innovative and unique projects. This class is designed for students who would like to explore a variety of art processes and materials. Students will explore several different mediums and methods for creating art and learn how to plan and implement projects from beginning to end.

Everyday Art Grade: 10 – 12 Credit: .5 Credit
Prerequisites: Explorations in Art
Everyday Art is designed as a class for students to explore a multitude of materials and subject matter in art while strengthening their technical and creative problem solving skills. Our focus will be hands-on art related to our everyday lives.

Drawing 1 Grade: 10 – 12 Credit: .5 Credit
Prerequisites: Explorations in Art
Drawing 1 focuses on the fundamentals of using drawing to construct naturalistic and believable compositions. This class will investigate the concepts and principles of drawing objects and environments from direct observation. Students will acquire the technical and conceptual skills that are fundamentals of the drawing process, while also developing their personal vision and creative goals within the field. Students will experiment with contour drawings, linear perspective, figure/ground relationships, shading techniques, tonal value, spatial concepts, and develop critical thinking skills.

Painting 1 Grade: 10 – 12 Credit: .5 Credit

Prerequisites: Explorations in Art

This course is designed to introduce the basic elements of painting to students with little or no experience. Students will work with acrylic paint and explore the many ways paint can be handled. Instruction will be given on preparation of materials and specific exercises will be given so that students will explore color, light, texture, transparency, and composition. Exercises become more complex as students work from initial sketches to more developed pieces. While working to gain an understanding of the painting medium, the student is challenged to translate concepts into visual images that work.

Graphic Design Grade: 10 – 12 Credit: .5 Credit

Prerequisites: Explorations in Art

This course is an introduction to the use of a digital platform to explore the principles, elements, and theories of design. Students will be exposed to a variety of software programs as they create a wide range of design-based projects.

3D Design Grade: 10 – 12 Credit: .5 Credit

Prerequisites: Explorations in Art

This course deals with art in its 3-Dimensional form. A variety of mediums will be explored, which may include textiles, ceramics, paper mache', wire sculpture and more! Students will participate in a wide range of experiences using additive or subtractive sculptural techniques designed to build artistic and creative confidence.

Ceramics Grade: 10 – 12 Credit: .5 Credit

Prerequisites: Explorations in Art

This course is designed for students that have an interest in clay and sculpture. In this introductory ceramics course, students will learn basic hand-building techniques and how to use the potter's wheel. Early projects will build skills to prepare students for the more challenging projects later in the semester. Students will also examine the use of clay in various cultures throughout history and in the contemporary art world.

Upcycled Art Grade: 10 – 12 Credit: .5 Credit

Prerequisites: Explorations in Art

This course is designed for students that have an interest repurposing goods. In this introductory upcycling course, students will learn how to create something that is functional and visually pleasing from discarded objects or materials. Students will work with a wide variety of materials.

Independent Study Grade: 11 - 12 Credit: .5 Credit

Prerequisites: Permission of Instructor

This class is designed for students who have successfully completed at least two years of art, are self-motivated, and are capable of working independently. Students orchestrate their own learning to focus on their needs as an emerging artist. Students plan, design, and create their own projects and reflect on the success of those projects.

Band Grade: 9 - 12 Credit: 1 (.5 per semester)

Prerequisite: Permission of Instructor

Concert Band is a continuation level course for students one or more years of previous band experience. This group works together to learn fun music for games, put together fun drills on the field and work together to create student leadership within the class and the music program. This top ranked performance group competes at various events through Michigan School Band and Orchestra Association, various concerts as well as having other opportunities for growth. In the fall of 2019, this group will be traveling to see The Lion King as well as playing for the Grand Rapids Griffins in Grand Rapids. Emphasis is on growing student leadership with

opportunities to serve as Drum Major, Jr. Drum Major, Treasurer, Music Librarian, choreographer for color guard, conducting opportunities and many more.

Choir Grade: 9 - 12 Credit: 1 (.5 per semester)
This group is perfect for those who love to sing. All singers are welcome and we focus on learning vocal techniques of singing, both at the solo level and with a group. We learn many different types of musical styles and perform at two concerts as well as sing at several various locations throughout the year. Student leadership is encouraged and many student led ideas are fostered.

PHYSICAL EDUCATION

Graduation Requirements: 0.5 credit PE, 0.5 credit Health

Physical Education Grade: 9 Credit: .5 Credit
Physical Education is a continuation of skills introduced in middle school. Our goal is for each student to gain an understanding of, make a commitment to, and develop the fundamental skills necessary to promote and protect personal health and fitness by means of physical activity, and to prevent or reduce the risk of disease or injury. Basic instruction will be given on the fundamentals of team and individual sports; physical fitness; beneficial effects of activity; weight control; aerobic/anaerobic capacity; and strength, power, endurance, and flexibility. All activities will encourage physical well-being, student responsibility, self-discipline, and motivation; respect for self and others, sportsmanship, and cooperation. All students are required to wear a staff-approved gym uniform.

Power PE Grade: 10 - 12 Credit: 1 (.5 per semester)
Prerequisite: Participation in any interscholastic sport and/or Instructor's Permission
This class is a high-level, high impact, physical education class designed for athletes that want to improve physical fitness, strength and agility for their sport. This performance-measured class will require students to regularly improve their maximum levels on certain lifts in the weight room. Student effort and daily participation will be another major factor in the grading process. Students may be working out on game days, but workouts may be modified during their sport season. This class should only be taken by students that want an intense daily workout. Students will be required to gain a parent signature on an approval form, and prior approval from the instructor to be considered for this.

Lifetime PE Grade: 10 - 12 Credit: 1 (.5 per semester)
Are you the type that would enjoy a break in the middle of your course day? If so, the Advanced Lifetime Activities course needs you! This course emphasizes lifetime sports and advanced skills and strategies. Activities include: basketball, volleyball, hockey, soccer, wiffle ball, ultimate frisbee, kickball, flag football, team handball, fitness, and development of an individual workout program. All activities will encourage physical well-being, student responsibility, self-discipline and motivation, respect for self and others, sportsmanship, and cooperation. All students are required to wear a staff-approved gym uniform when participating in all gymnasium activities and certain outdoor activities.

Health Grade: 9 Credit: .5 Credit
Health is a course of instruction designed to help the student develop desirable physical, mental and emotional attitudes, which will lead to a high quality of life. Topics to be covered include: Mental disorders; Endocrine/Male and Female reproductive system; Infectious diseases; STI's (including HIV) ; Healthy/Unhealthy relationships; CPR; Alcohol and other drugs; Nutrition. Students will work individually and in groups. Active participation is very important in class, as many lessons require discussion and activities.

College/Career Pathway Courses

Graduation Requirements:

C/O 2024 and beyond (0.5 Freshman Focus, 0.5 College Career Readiness, 1.0 Personal Management)
C/O 2023 and beyond (0.5 Freshman Focus, 1.0 Personal Management)
C/O 2022 (0.5 College Career Readiness, 1.0 Personal Management)

Freshman Focus Grade: 9 Credit: 0.5
Freshmen Focus is a one-semester, stand-alone course to help entering ninth grade students prepare for the increased academic rigor of high school, meet the social and emotional challenges they may encounter throughout high school, and develop students' post-secondary plans. Students will continue developing their Educational Development Plans (EDP).

College Career Readiness Grade: 10 Credit: 0.5
The College Career Readiness course is designed to give students the tools to transition them in their chosen direction after high school. The skills taught in this course are imperative to ensuring that each and every student who graduates has a clear understanding of how to succeed and thrive in college, at work or both. Students will engage in EDP development, presentation and speaking activities, field trips and interactions with guest speakers in a variety of post-secondary fields.

Personal Management Grade: 12 Credit: 1 (.5 per semester)
This course focuses on skills which will help students be successful both in personal life and as a member of American society. Students will explore how success in life is defined before determining a personal path towards success. Emphasis will be placed on developing positive relationships with others as well as developing personal skills necessary for successful living. Some of these skills include financial literacy, healthy habits, goal setting, setting proper boundaries, and ways to contribute to society. Guest speakers will provide different perspectives and students will develop a culminating portfolio which will be used as a basis for an exit interview. This interview will offer students an opportunity to share the activities, learning, and skills they have developed throughout the high school years.

STEAM Grade: 10-12 Credit: 0.5
STEAM is a course to explore science, technology, engineering, art, and math all in one curriculum. This course offers an innovative approach to learning in which students use problem solving skills to tackle hands-on learning activities. Skills in this course will improve critical thinking skills and will propel students toward a successful career in the STEAM fields.

SAT Prep Grade: 10 & 11 Credit: .5 Credit/semester
SAT Prep is designed to help students prepare for the SAT test. Students will learn about the format of the test and how it is scored. They will learn about different test-taking tips, as well as learn about and review many of the key concepts covered on the test. Students will predominantly use the KHAN Academy website to complete a series of diagnostic tests to set their current skill levels. An individualized practice schedule will then be created for each student. Students will take practice exams and get feedback on their performance, what topics they will need to work on, and how they can improve their scores and build confidence.

WORK-BASED LEARNING Grade: 11-12 .5 credit per hour of schedule Workplace learning programs provide an opportunity for secondary school students to gain valuable "on the job" skills and experience through short or long term placements in the work environment. Workplace learning aims to improve student learning, enhance student engagement and wellbeing, and support successful transitions from secondary school to further training and employment. This course is not intended for students already enrolled in a career-technical center program. Students must have a completed and up-to-date EDP and work-based placement must match career pathway in the student's EDP

WORLD LANGUAGE

Graduation Requirements: 2.0 credits

Spanish I Grade: 9 - 12 Credit: 1 (.5 per semester)
Spanish 1 is designed for the student who would like to learn to communicate in Spanish. This communication involves developing reading, writing, speaking, and listening skills. This course emphasizes basic grammatical concepts, vocabulary building, and pronunciation. The culture of the different Spanish speaking countries in the world is researched, compared, and displayed in the classroom. Spanish holidays are focused upon throughout the year as they occur. The course is designed from a conversational approach to a variety of real life situations. This course is strongly recommended for the college bound student.

Spanish II Grade: 9 - 12 Credit: 1 (.5 per semester)
Prerequisite: Spanish 1
Students who have mastered the fundamentals of Spanish 1 are encouraged to enroll in Spanish 2. The student will strengthen and broaden his/her previous knowledge of Spanish grammar and vocabulary through continued use in a variety of thematic and real life situations. Emphasis will be placed on building listening, reading, writing, and speaking skills. The course will continue to focus on Hispanic Culture. As with Spanish 1, this course is strongly recommended for college-bound students.

Spanish III Grade 10-12 Credit: 1 (.5 per semester)
Prerequisite: Spanish 2

This class will focus on communication in very practical situations. Students will extend their conversational abilities to a more advanced level to help them become more functional in the Spanish-speaking world. Role-plays and partner conversations are used frequently. The grammar is taught in the context of those situations. In Spanish 3, there is a more in-depth study of the cultural celebrations and festivals and why they are important to the culture.

ONLINE/EDGENUITY

There are a number of courses available to take online via numerous providers. Credit recovery courses are available via Edgenuity. Courses designated as Honors or AP will be graded on the Ravenna High School weighted scale. Course catalog for original credit courses are provided through GenNET Online Learning (https://www.gennet.us/public/catalog). If a student chooses to enroll into an online course that is offered in person, approval is needed and should be the result of a schedule conflict.

Muskegon Area Career Technical Center

(1 or 2 year programs)

Allied Health Grade: 11 - 12 Credit: 2 per semester
Students explore healthcare careers, learn basic anatomy and physiology, and practice patient care skills. Blood Borne Pathogen, CPR, AED, and first aid certifications, as well as English credit and college credit, are available. Related careers include, but are not limited to, athletic trainer, biomedical scientist, certified nursing assistant, medical assistant, physical/occupational therapist, nurse, pharmacist, physician assistant, radiologic technologist, surgical technologist, and ultrasonographer.

Auto Service Technology Grade: 11 - 12 Credit: 2 per semester
Students perform alignments, engine rebuilds, brakes and driveline services, engine electronics programming, air conditioning repair, and other general automotive maintenance and services. Automobile Service Excellence (ASE) Student certification. English, 4th year math, and college credit are available. Related careers include automotive service technician, automotive service writer, automotive service manager.
Auto Collision/Refinishing Grade: 11 – 12 Credit: 2 per semester Students repair damaged vehicles by learning dent repair, welding techniques, panel replacement, surface preparation, estimating and painting. Automobile Service Excellence (ASE), I-CAR, and OSHA Safety certifications in addition to fourth-year math and college credit are available. Related careers include, but are not limited to, automotive painter, detailer, estimator, and management.

Bio Tech & Engineering Grade: 12 Credit: 2 per semester *Designed for returning Allied Health, Auto Service, Computer-Aided Design,*

Internet, Network & Security, or Machining/Engineering Technology students

Students engage in project-based learning that combines science, engineering, and technology. Classmates explain and create solutions to real-world problems proposed by community and business partners. English, fourth-year math, and college credit are available. Related careers include, but are not limited to, computer programmer, engineer, physical therapist, occupational therapist, and biotechnical careers.

Computer Aided Design Grade: 11 - 12 Credit: 2 per semester
Students create standard drawings for engineering and architecture, communicate ideas for products and designs, use cutting edge software from the design industry, create 2D and 3D drawings, and practice 3D printing.Fourth-year math and college credit are also available. Related careers include, but are not limited to, mechanical, automotive and aerospace engineering, industrial design, architecture, interior design, CAD/CAM, and construction management

This is also part of the Early College: Advanced Technology Institute program at Muskegon Community College.

Construction Trades Grade: 11 - 12 Credit: 2 per semester
Students learn carpentry, masonry, drywall and roofing as they build an entire house from start to finish. OSHA 10-Hour Construction Safety certification and Michigan 60-Hour Pre-license Builder training are available in addition to fourth-year math and college credit. Related careers include, but are not limited to, skilled trades like plumbing, HVAC, electrical, and masonry as well as drywall, painting, construction management, estimating, sales, and design.

Cosmetology Grade: 11 - 12 Credit: 2 per semester
We all like to look our best. As a cosmetologist, you can help others achieve that goal. If you enjoy helping people look and feel their best and want a fast paced, progressive career, then cosmetology may be for you. Our 1500 -hour program will provide you with all the latest beauty industry techniques and the training you will need to prepare for the State of Michigan Cosmetology Licensing Examination.

Electrical Computer Technologies Grade: 11 - 12 Credit: 2 per semester
Electrical Electronic Technology (EET) concepts are the core of many career fields. Telecommunications, residential wiring, computer maintenance, control systems, and industrial maintenance are but a few examples. The EET program provides students with essential hands-on skills that are directly transferable to the world of work. Students use state-of-the-art test equipment to monitor the behavior of electrical devices and circuits, develop troubleshooting skills, and gain an understanding of electronics. EET exposes students to real world applications of electricity and electronics.

Graphic Production Technologies Grade: 11 - 12 Credit: 2 per semester
Program Description: Graphics and printing is the third targeted industry in the United States and has been identified as a high growth occupation field above average earnings. This high-tech program offers you the opportunity to learn and work with cutting edge, industry standard equipment that will prepare you for a career in electronic pre-press operation, photography, film imaging and scanner operations, offset and screen printing or bindery and packaging. As part of a team, you will work on live jobs, gaining technical expertise as well important employability and customer service skills.

Health Science Academy/Allied Health Technology Grade: 11 - 12 Credit: 2 per semester Health Services is designed to prepare you to provide nursing care to the patient. This course explores direct patient care, nutrition and feeding, body structure and vital signs. Students will explore various health related careers and community health problems and resources. Students successfully completing the theory and classroom instruction will participate in clinical work experiences at a local nursing home earning a certificate that documents clinical hours and skills. Upon completion of the program, students will be eligible to take a written and clinical test for State certification as a Nursing Aide.

Environmental/Veterinary Sciences Grade: 11 - 12 Credit: 2 per semester Are you interested in landscape design and maintenance,

greenhouse crop production, floral design, interior plantscaping, hydroponics, aquaculture, or environmental issues such as water quality testing? Explore these careers and more in the Horticulture & Natural Resources program. Classroom study and hands-on opportunities will focus on plant and soil science, sales and marketing, design principles, land use issues, and watershed and environmental stewardship. Students in this program will also participate in FFA leadership activities and competitions. Also learn about care for animals and the skills necessary to enter the veterinary field.

Internet, Network and Security Technologies Grade: 11 - 12 Credit: 2 per semester Skills and knowledge in information technology will continue to prove invaluable and necessary regardless of the career path a student follows. Each of the top seven fastest growing occupations for 2000 to 2010 falls within an information technology or computer-related field. This includes the following occupations: computer software engineers, computer support specialists, network systems and data communications analysts, desktop publishers and database administrators.

In the CTC Internet, Network, & Security Technologies program, students gain the most up-to-date skills and hands-on experience in Internet technologies, Web site design and development, networking, network security, and Web server administration. They may also focus on computer programming, learning programming and scripting languages such as Visual Basic .NET, PHP, Perl, and JavaScript. They build wired and wireless networks and install and configure firewalls. During the second year of this program, students are introduced to the hottest fields in IT -- computer security and video game development. They train and acquire the skills to become certified Security Professionals and/ or game developers. The INST program offers students access to state of the art technology while achieving a valuable and marketable skill!

Machining/Engineering Tech Grade: 11 - 12 Credit: 2 per semester

This program prepares the student for an entry-level job in the tool and die, mold-making, or machining industries. Students will learn to use hand tools, precision measuring devices, drill presses, lathes, milling machines, and precision grinding machines. The program includes instruction in computations for speeds, feeds, precision measuring, and layout work. Students will also have the opportunity to experience Computerized Numerical Control (CNC) machining as well as Computer Aided Machining (CAM) technology. Excellent preparation is provided for advanced degrees in engineering or manufacturing technologies.

Criminal Justice Grade: 11 - 12 Credit: 2 per semester

Law enforcement officer, firefighter, EMT, dispatcher, probation officer, park ranger, crime scene investigator, first responders: thousands of challenging educational and training opportunities await you in the highly skilled world of Public Safety/Protective Services. In this course, you'll get the knowledge and skills you'll need to advance into a post-secondary program. This course reviews the legal justice system and helps you develop a better understanding of state, federal, and international law. Students will also be tested for Cardiopulmonary Resuscitation (CPR) certification.

Hospitality and Business Management Grade: 11 - 12 Credit: 2 per semester

Do you want to manage or own your own restaurant? Do you want to work in a fast-paced environment where every day brings new, exciting challenges? Are you a team player? Are you dependable, energetic, and good with your hands? In Culinary & Catering Management, you will learn the most up-to-date skills & techniques! You will learn important management skills, like safety & sanitation, food cost control, menu planning & design, customer service, and supervisory & teamwork skills. You will actually operate the Harvey Street Cafe, a restaurant & conference center that is open to the public; step beyond basic cooking to prepare International and haute cuisine; visit some of the area's most exciting restaurant and tourist destinations; and learn what it takes to be a SUCCESS in this industry!

Welding Technologies Grade: 11 - 12 Credit: 2 per semester

Classroom instruction combined with HANDS-ON training enables students to develop knowledge and skills in welding safety, use of

tools, proper techniques in brazing, flame and plasma cutting, gas metal arc (mig), gas tungsten arc (tig), and shielded metal arc (stick electrode) welding processes and apply them according to diagrams, blueprints and written specifications. Students may advance at their own pace in developing these techniques and skills. Second-year students will apply their knowledge and skills to higher competency levels expected of entry to intermediate level welders. It is helpful if a student has some previous mechanical drawing coursework and math aptitude.