

Billings Career Center

Vocational – Technical Training

Did you know that while in high school you can build a house, repair automobiles, teach pre-kindergarten children, and design a web page? You can learn: photography, printing, wiring a house, networking computers, welding, machining, interior designing, landscaping, to become a dispatcher, about animation, and how to grow plants. You can also take Psychology, English 3, English 4, Science, Government, U. S. History, Algebra II, Algebra III. You may continue to participate in activities at your home school.

Utilize this course offerings catalog to select your classes. See your counselor if you have any specific questions. If you would like to tour the Career Center, please contact us at 281-5344 to set up a time. Let's get together – the Career Center is the place for you!

Please note: In any course at the Career Center a student can be enrolled with administrative approval regardless of prerequisite requirements.

<http://www.billingscareercenter.com>

Principles of the Biomedical Sciences	Credit 1	10, 11
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Course Name	Semester 1 & 2	Grade Level
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Course Description: Student work involves the study of human medicine, research processes, an introduction to bioinformatics, and the use of computer science, mathematics and information theory to model and analyze biological systems. Students investigate the human body systems and the various health conditions including: heart disease, diabetes, sickle-cell disease, hypercholesterolemia and infectious diseases. They determine the factors that lead to the death of a fictional person, and investigate life-style choices and medical treatments that might have prolonged the person's life. Key biological concepts including homeostasis, metabolism, inheritance of traits, feedback systems and defense against disease are embedded in the curriculum. Engineering principles including the design process, feedback loops, and the relationship of structure to function are incorporated in the curriculum. This course is designed to provide an overview of all the courses in the Biomedical program and lay the scientific foundation for subsequent courses.

Students will be selected through a lottery process.

Prerequisite Courses: None

Applies Toward Graduation Requirements of: Practical Arts

First Year**Electronics 1 / Electric 1- (1st Semester – 2 Hour Class)****Electronics 2 / Electric 2- (2nd Semester- 2 Hour Class) Credit 1 (each semester) 11, 12****Course Name****Semesters 1 & 2****Grade Level**

Course Description: This program prepares students with core knowledge and experience for a variety of careers related to the electrical and electronics fields. Students will learn through study and hands-on activities the principles and applications of electricity. The theory, design and testing of basic circuits and components is presented in the classroom and applied in the lab setting with 40-60-% hands-on activities and labs. Students learn low and high voltage wiring principles and practices. These students have been involved in the wiring of the Career Center house project since 1975 and also installed the data, telephone and cable TV systems in the Billings high schools.

Units of Study:

- Electron theory and behavior of electricity
- Circuits design and behavior of components
- Measuring and analyzing circuit behavior
- Direct and alternating currents
- Mathematical calculations of electronics
- Semiconductor applications and operations
- Safe practices, codes, standards and designs in electrical circuitry

Essential Requirements

- **Solid understanding of basic algebra**

In the event of over enrollment the first criteria for consideration shall be current daily attendance.

Students may enroll in the Fall only

Recommend Algebra 2

TWO-HOUR BLOCK and a 1-year class

Prerequisite Courses: Students should have had at least a "C" in Algebra 1. Algebra 2 is recommended

Applies toward graduation requirements of: Practical Arts

Second Year

Electrical Technician 1/Electronic Communication 1-1st Semester

Electrical Technician 2/Electronic Communication 2-2nd Semester

Credit 1-(each semester)

11, 12

Course Name

Semesters 1 & 2

Grade Level

Course Description: This is a continuation of the first-year program. Students will expand their studies into advanced electronics and electrical applications. Industry standard training systems will be used for advanced circuit analysis with emphasis placed upon AC systems, semiconductors, digital circuits, and advanced analysis techniques. Students will also pursue study of their own personal interest in electronics as approved by the instructor.

Units of Study:

- Advanced circuit analysis and design
- Circuit design and fabrication
- Semiconductor applications
- Pre-engineering electronics practices

Essential Requirements

- Completion of the first-year program with a “B” minimum grade
- Solid understanding of basic algebra

In the event of over enrollment the first criteria for consideration shall be current daily attendance.

Students may enroll in the Fall ONLY

Recommend Algebra 2

TWO-HOUR BLOCK and a 1 year class

Prerequisite Courses: Students must have completed the first year program (semesters 1 and 2) with at least a "B" and be accepted into the program by the instructor/administrator.

Applies toward graduation requirements of: Practical Arts

Introduction to Networking (1st semester)
Networking Fundamentals (2nd semester) Credit 1/2 (each semester) 11, 12

Course Name	Semesters 1 & 2	Grade Level
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Course Description: These courses utilize both the Cisco® IT Essentials and the CCNA® Discovery curriculums. The courses prepare students for entry-level career opportunities, continuing education, and globally recognized Cisco certifications.

Semester 1: The Cisco® IT Essentials, PC Hardware and Software course is designed for Cisco Networking Academy® students seeking career-oriented, entry-level hardware and software skills. Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software. Additional topics covered include laptops and portable devices, wireless connectivity and basic implementation skills, Voice over Internet Protocol (VoIP), security, safety and environmental issues, applied network configuration and troubleshooting skills, and communication skills.

Semester 2: The Cisco® Networking Academy Discovery curriculum class teaches students how computers communicate across networks and how to configure computers, switches, wireless access points and routers. The class uses a small-office and home-office (SOHO) network-based lab to introduce some basic networking concepts such as:

- Network media and cabling practices
- Network addressing types and schemes
- Wireless networks
- Network security
- Design deployment, troubleshooting and management of networks

These courses are both reading and lab intensive. Students are expected to read the online curriculum, compete and record labs in a lab manual and take industry standard Cisco exams. The class is college articulated and may be worth college credit if a student continues after high school in the study of advanced certifications (CCNA, CCNP, etc.).

Essential Requirements

- **Solid understanding of basic algebra**
- **Reading is a core learning method**
- **Daily attendance is a must**

In the event of over enrollment the first criteria for consideration shall be current daily attendance.

FALL ENROLLMENT ONLY: This is a year-long class.

ONE-HOUR CLASS

Prerequisite Courses: Algebra 1, Tech Essentials
Applies toward graduation requirements of: Practical Arts

Botany**Urban Agriculture****Credits 1 (each semester)****11, 12****Course Name****Semester 1 and/or 2****Grade Level**

Course Description: This course is designed for the student that has a genuine interest in the “Green Industry” with an emphasis on plants and environmental factors that affect them. Learning will take place through a combination of indoor/outdoor laboratory activities. Many of the subjects include hands-on learning experiences. Class projects may include designing and constructing a hydroponic garden, growing plants in the school greenhouse, design and install a landscape and sprinkler system “Spring Semester.” Holiday crafts for seasonal occasions “Fall Semester.” Other subjects that will be covered but not limited to; Careers in Horticulture, Plant identification, Lawn and grounds maintenance, Xeriscaping, Water gardens, and Aquaponics. In addition, students may be asked to participate in community and school projects.

Essential Requirements:

- Design a landscape and irrigation system
- Demonstrate floral and craft design
- Demonstrate plant identification
- Have knowledge of landscape, grounds maintenance, and pruning
- Identify pest and weed control techniques
- Demonstrate knowledge of environmentally safe practices

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: Earth Science, Biology 1. A grade of “C” or better must be earned to continue 2nd semester course.

Applies toward graduation requirements of: Practical Arts

Horticulture**Credit 1/2****11, 12****Course Name****Semester 1 and/or 2****Grade Level**

Course Description: The science of growing plants can be interesting and profitable. Working in the school's greenhouses students are prepared for entry-level greenhouse, nursery, and florist positions. Instruction includes plant growth needs, various propagation techniques, propagation and growing structures, hydroponics, and green house environmental controls. Students will learn about identifying plants, growing nursery crops, chemical and biological pest control while incorporating environmentally safe practices.

Essential Requirements:

- Demonstrate plant identification
- Demonstrate plant propagation and grafting techniques
- Participate in bedding plant production
- Identify techniques for maintaining houseplants
- Prepare a cost analyses of operating a greenhouse in a Northern climate
- Design greenhouse structures and layout
- Identify techniques and materials used to control pests and disease

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE- HOUR CLASS**Class meets a.m. ONLY****Prerequisite Courses:** Genuine interest in Horticulture**Applies toward graduation requirements of:** Practical Arts

Environmental Studies**Credit 1/2****11, 12****Course Name****Semester 1 and/or 2****Grade Level**

Course Description: Environmental Studies is a one or two-semester course in which students examine the complex ecological, sociological and political problems created by human interaction with the Earth's environment. Field studies are employed whenever possible to reinforce concepts learned in the course. Zoo-Montana is the principle field study area used in the course. Students participate in an in-school recycling program and community minded projects such as the Bright and Beautiful Christmas tree recycling program.

Essential Requirements:

- Water quality analysis
- Population studies
- Air quality analysis techniques
- Contemporary environmental issues
- Basic ecological concepts

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS**Class meets p.m. ONLY****Prerequisite Courses:** Biology/Earth Science**Applies toward graduation requirements of:** Practical Arts

Course Name	Semester 1 or 2	Grade Level
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Course Description: This course explores and develops skills in graphic design as it applies to the web. Students will get a foundation in HTML, to focus on web development. Once the foundation is laid, students will move into design aspects and functionality of professional web design, including navigation, graphic design and layout. Students will combine the skills they have in HTML and design to develop professional web sites with Adobe Dreamweaver and Photoshop. This will give students skills in both web design and development.

Other key elements to be taught:

- Use and function of the internet
- Web site evaluation based on design and function
- Web site structure and effective navigation
- All aspects of design and function are compared to industry standards

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Web Page 2	Credit 1/2	11, 12
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Course Name	Semester 1 or 2	Grade Level
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Course Description: This course further explores and develops skills in web design and development. This course will focus on database driven web solutions with Coldfusion, web site optimization for search engine placement, fast loading speeds and function for a range of users. An emphasis will be placed on the "full package" design and build from domain name to the final upload. Students will work together for art direction and evaluation to create a quality of design that mirrors the industry.

Other key elements to be taught:

- Skills, such as interview and responding to feed back
- Web design geared towards the client
- Re-design and modification based on client specifications
- Design solutions including web site, domain names, hosting and email

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Prerequisite Courses: Requires a grade of "C" or higher in Web Page 1 or administrative approval

Applies toward graduation requirements of: Practical Arts

Animation Lab I	Credit 1/2	11, 12
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Course Name	Semester 1 or 2	Grade Level
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Course Description: This exciting course introduces students to the world of animation, moving from traditional methods and terminology (including anatomy, basic perspective and flipbooks) to cutting edge techniques using Abode Flash software to create and animate 2 dimensional computer based graphics.

There is a strong emphasis placed on drawing, both character and environment.

Other Key Elements:

- Flash animation designed and developed specifically for the web
- Use of emerging technology
- Creation of storyboards and outlines
- Creative thinking with technology

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Students are assessed a \$15.00 lab fee for materials which must be paid before the third week of class.

Prerequisite Courses: Recommend: Art 1 and basic drawing skills (which should include knowledge of anatomy and perspective)

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Course Name	Semester 1 or 2	Grade Level
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Course Description: This course builds on previously learned animation techniques and allows students to take their creativity to the next level in multiple animations. Additionally, students will continue to work on their ability to draw convincing poses, expressions, character designs, thumbnails, and storyboards.

Other Key Elements:

- Advanced techniques in Flash
- Use of emerging technology

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Students are assessed a \$15.00 lab fee for materials which must be paid before the third week of class.

Prerequisite Courses: Requires a grade of "C" or higher in Animation Lab 1

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Print Photo	Credit 1	11, 12
Course Name	Semester 1 or 2	Grade Level

Course Description: Photography introduces and explores the Graphic Art of Photographic Communication. This course provides students with an introduction to visual concepts, basic image capture, and camera functions using film and digital cameras. Students will learn to shoot, develop, crop, and mount their photographs as well as specific professional camera and lighting techniques. Students will also have the opportunity to begin exploring the cutting edge field of digital photography, using the latest Adobe software available in the industry. This course consists of lecture, textbook assignments as well as darkroom and studio projects. Field trips to local businesses and location shots enhance the hands on learning experience.

Essential Requirements:

Students will demonstrate the following:

- Pinhole camera construction and usage
- Black and white film development and printing techniques
- Basic understanding and use of software basics for photographic imaging and digital printing
- Dry mounting and presentation techniques
- Basic camera functions in both 35mm and DSLR

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Students must have a “C” or better to move into Digital Photo, Digital Illustration, Design Ad./Design Layout from Graphics/Print Photo or Instructor/Administrator Approval. Students are assessed a \$15.00 lab fee for materials which must be paid before the third week of class.

TWO-HOUR BLOCK: Offered a.m. and p.m.

Prerequisite: Art 1

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Design Layout	Credit 1	11, 12
Course Name	Semester 1 or 2	Grade Level

Course Description: This challenging, hands-on course explores the art-related field of Graphic Design, and includes illustration, advertising design & layout, computer assisted design, and print & design theory. During the semester, students are exposed both to traditional and cutting edge techniques and procedures, and have the opportunity to learn and create in a productive, supportive environment. Additionally, Design students will hear from a variety of professionals working in all aspects of the industry, and will spend time exploring the wide array of graphics related careers available today. Students successfully completing class will be able to step into and perform capably in a number of entry-level jobs in the graphic design industry.

Essential Requirements:

Students successfully completing this class will:

- Demonstrate a solid understanding of both the theory and application of the principles and elements of design.
- Demonstrate basic knowledge of typography and composition.
- Demonstrate basic art techniques.
- Demonstrate basic knowledge regarding the history of Graphic Design, including knowledge of a variety of well-know designers and artists.
- Demonstrate introductory knowledge of Adobe Illustrator, the industry's leading design software.

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Students must have a "C" or better to move into Digital Illustration, or Graphics/Print Photo from Design Advertising/Design Layout. Students are assessed a \$15.00 lab fee for materials which must be paid before the third week of class.

TWO-HOUR BLOCK: Offered a.m. and p.m.

Prerequisite: One credit of Art (2 art classes) preferred

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Digital Photo	Credit 1/2	11, 12
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Course Name	Semester 1 or 2	Grade Level
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Course Description: This course encourages students to further develop the graphic communication and design skills learned in previous classes, and involves practical lessons dealing with image manipulation. Students will enhance their skills in photography, composition, layout & design, and through the use of Adobe Software's industry standard Creative Suite. In this class, there is major emphasis on not only learning how to use Adobe Photoshop, but also on how to apply that knowledge in building a professional quality portfolio. Occasionally, community design/graphics projects are brought in and completed in-house by the class members.

Students successfully completing this class will be able to step into and perform capably in a number of above entry-level jobs in the Graphic Arts industry.

Essential Requirements:

Students successfully completing this class will:

- Capably demonstrate knowledge and application of all aspects of Adobe Photoshop through class lessons and self-directed work
- Capably demonstrate Photoshop skills through a variety of relevant assignments, including business card and cd cover design, photo retouching, and photo manipulation

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Offered a.m. fall semester and p.m. spring semester

ONE-HOUR CLASS

Recommended background: first-year graphics or several art classes

It is recommended students who successfully complete this class continue in Digital Illustration. Students are assessed a \$15.00 lab fee for materials, which must be paid before the third week of class.

Prerequisite: Students must earn a C or better in Graphics/Print Photo

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Course Name	Semester 1 or 2	Grade Level
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Course Description: This course encourages students to further develop the graphic communication and design skills learned in previous classes. Students will enhance their skills in composition, layout & design, and photography through the use of Adobe Software's industry standard Creative Suite. In this class, there is major emphasis on not only learning *how* to use Adobe Illustrator, but also how to apply that knowledge in building a professional quality portfolio. Occasionally, community design/graphics projects are brought in and completed in-house by class members. Students successfully completing class will be able to step into and perform capably in a number of entry-level jobs in the graphic design industry.

Essential Requirements:

Students successfully completing this class will:

- Demonstrate a solid understanding of both the theory and application of the principles and elements of design.
- Demonstrate basic knowledge of typography and composition.
- Demonstrate basic art techniques.
- Demonstrate basic knowledge regarding the history of Digital Design, including knowledge of a variety of well-known designers and artists.
- Demonstrate knowledge of Adobe Illustrator, the industry's leading design software, including: tool usage, and intermediate skill

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Offered p.m. Fall Semester, and a.m. Spring Semester.

ONE-HOUR CLASS

Students are assessed a \$15.00 lab fee for materials, which must be paid before the third week of class.

It is recommended that students who successfully complete this class continue with Digital Photo.

Prerequisite: Students must earn a C or better in Design Advertising/Design Layout
Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Course Name	Semester 1	Grade Level
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Course Description: Instruction and learning are provided in a studio setting, using hands-on exploratory experiences with equipment and tools related to the broadcast industry. It is recommended for students thinking about a career in radio or TV and those interested in learning about the power of broadcast medium in message creation as an art. Students will learn how to safely operate basic TV and radio equipment including cameras, audio mixers, lights and editing software in order to produce their own video and audio packages. They will learn about media law and history of broadcasting, and apply that knowledge to their own studio based projects like radio plays, TV commercials, and news programs. Students are encouraged to keep a portfolio of their work to include both produced materials on cd and DVD and written work including résumés, thank you letters and other job related works. As with all Career Center courses, emphasis is placed on creating a workplace environment rich with career exploration, from on-the-air to behind-the-scenes, much of which is gained through field trips. The communication nature of this course helps students become more effective in all other areas of their secondary coursework. Qualified students, upon completion of this course, may obtain their FCC Operators License.

Essential Requirements:

- Maintain record keeping as it relates to job (student) performance
- Practice workplace skills including participation, cooperation and self-motivation
- Demonstrate correct equipment use per handbooks and demonstrations
- Exhibit an awareness of broadcast history and media law roles in society
- Exhibit expanded communication skills by performing on camera and on live radio
- Turn in all major projects by deadline

In the event of over enrollment first criteria for consideration shall be current daily attendance.

*Due to the vocational nature of this course, equipment and demonstrations may not be available during unscheduled times. Therefore this class may not be suited for those with attendance problems.

TWO-HOUR BLOCK: First Semester

Recommended Coursework: This course should be taken junior year as background for both Sound Studio and Video Production to be taken senior year.

Prerequisite Courses: English 1 & 2

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts.

Broadcast Media Literacy/Media Lab	Credit 1	11, 12
Course Name	Semester 2	Grade Level

Course Description: Instruction is provided in a classroom/studio setting, using hands-on experience with equipment and tools related to the broadcast industry. Students explore the meanings behind the messages as seen on TV and heard on radio. They examine the major parts of an ad campaign – the jingle, the copy, the USP, the logo, the target audience and ad placement. Students learn the basic equipment (camera, mic and lights) and software it takes to make ads of their own! Students who plan post-secondary coursework in communications, journalism or business would benefit from this class. Students may keep a portfolio of their work on cd and DVD including commercials, interviews and projects. Students will also have opportunities to head off campus to explore careers and practice their job-finding skills on field trips. This course will build performance skills, refine communication skills, and provide networking opportunities into the community. Students successfully completing this course may obtain their FCC Operators License.

Essential Requirements:

- Maintain record keeping as it relates to job (student) performance
- Practice workplace skills including self-motivation, teamwork and conflict resolution
- Demonstrate correct equipment use per handbooks and demonstrations
- Reflect competency in technical writing and media message construction
- Demonstrate skill in reading and comprehension
- Demonstrate an understanding of the relationship between programs, ads, and consumers
- Demonstrate an understanding of careers in broadcasting
- Demonstrate management of resources and job skills through field trip exercises

In the event of over enrollment first criteria for consideration shall be current daily attendance.

*Due to the vocational nature of this course, equipment and demonstrations may not be available during unscheduled times. Therefore this class may not be suited for those with attendance problems.

TWO-HOUR BLOCK

Recommended Coursework: This course should be taken junior year as background for both Sound Studio and Video Production to be taken senior year.

Prerequisite Courses: English 1 and 2

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts.

Course Name	Semester 1	Grade Level
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Course Description: Dispatchers co-ordinate the movement of goods and services to those who need them. Dispatchers work in trucking, taxi, bus, courier, delivery and emergency services. Successful dispatchers determine what the caller needs, which vehicle should respond, where to send the responder, and track that responder through the duration of their run. This course focuses on acquiring and practicing basic skills of the dispatcher, including mapping, listening, split ear and multi-tasking to name a few. Job opportunities are plentiful in all areas of the country. Dispatching can provide a pathway to related careers in public service like police, fire, and medical. As with all Career Center courses, emphasis is placed on creating a workplace environment rich with career exploration, much of which is gained through field trips.

Essential Requirements:

- Describe and demonstrate professional ethics and the role of the telecommunicator
- Demonstrate communication and interpersonal skills
- Perform operational skills (equipment)
- Comprehend effects of stress
- Demonstrate employability skills (mapping, keyboarding, listening, description taking, details)
- Demonstrate knowledge of career opportunities available in dispatching

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS: First Semester- Afternoon only

Students entering this class in the fall may wish to continue with 911 Dispatch II in the spring. Priority enrollment will be given to those planning to enroll in both semesters.

Recommended Skills: Keyboarding, good spelling is beneficial

Prerequisite Courses: None

Applies Toward Graduation Requirements of: Practical Arts

Course Name	Semester 2	Grade Level
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Course Description: The events of 9/11 placed a high demand on emergency telecommunicators. As a result, job opportunities are plentiful in all areas of the country and usually include good wages and benefits. Modern cell phone use means more calls to 911, and more job opportunities as well. Successful dispatchers are those who can determine the exact need of the caller, determine what response is right for the situation, dispatch appropriate personnel or equipment, and insure the safety of those they dispatch. This course focuses on acquiring and practicing skills of the dispatcher, then using them in a computer aided dispatch simulator. It also opens the career pathway to other related careers in fire, police, medical and hazardous materials. As with all Career Center courses, emphasis is placed on creating a workplace environment rich with career exploration, much of which is gained through field trips. Successful completion will prepare students to take the Emergency Telecommunicator Certification, a nationally recognized classification that reflects the extent of proficiencies in emergency dispatching.

Essential Requirements:

- Describe and demonstrate professional ethics and the role of the telecommunicator
- Demonstrate an understanding of the roles of first responders
- Perform operational skills (equipment)
- Comprehend stress management techniques
- Demonstrate employability skills (mapping, keyboarding, listening, description taking, details)
- Demonstrate knowledge of career opportunities available in dispatching

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS - Second semester - p.m. only

Students who took Dispatch I the previous semester or year will be given first priority enrollment.

Recommended Skills: Tech Essentials, good grammar and spelling.

Prerequisite Courses: None

Applies Toward Graduation Requirements of: Practical Arts

Course Name	Semester 1	Grade Level
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Course Description: Instruction and learning are provided in a classroom/studio setting using hands-on exploratory experiences with the latest digital equipment and traditional linear tools related to the broadcast industry. The course emphasizes planning and producing projects in both linear and digital audio. It covers basic science of sound, broadcast radio, music creation for video, and career related audio industries. Students will learn how to hook up audio systems and do multi-track recording, mixing and voice capture. They will produce projects like radio commercials, radio plays with sound effects, original music through computers, and storytelling developed through sound effects. Students learn professional grade music software including GarageBand and Soundtrack and explore career assignments on the Career Center radio station, KRER. They will interact directly with local businesses through field trips which will allow them to practice communication, organization and resource management skills that they will cover in class and make valuable industry connections.

Essential Requirements:

- Practice positive workplace skills including participation, cooperation and self-motivation
- Demonstrate correct equipment use per handbooks and demonstrations
- Demonstrate knowledge of the science and technology of the audio signal
- Participate in audio and broadcast related career exploration
- Produce projects within established time frames and regulations (FCC)
- Demonstrate knowledge of editing software

In the event of over enrollment first criteria for consideration shall be current daily attendance

*Due to the vocational nature of this course, equipment and demonstrations may not be available during unscheduled times. Therefore this class may not be suited for those with attendance problems.

TWO-HOUR BLOCK: First Semester – Morning Only

Recommended Courses: Intro to Broadcasting and/or Broadcast Media Literacy to be taken first year, and Video Production following this course for further experience in application, in the second year.

Prerequisite Courses: English 1 and 2

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts

Course Name	Semester 2	Grade Level
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Course Description: This class is taught in a studio-like setting with a hands-on approach. Students learn the more advanced components of the art of video making, which include lighting, writing, sound, camera work and production. Emphasis is on planning, directing, acting, producing and editing visual projects for broadcast that include interviews, commercials, a school news show and training videos. Career exploration includes networking with professionals on field trips and job shadows. Students are encouraged to keep a portfolio of their work on cd and DVD. Students planning careers or further education in journalism, communication or film making would benefit greatly from this course as well as those interested in producing videos to put out over the web, wanting to launch into filmmaking or television, or to making a better video of an upcoming event.

Essential Requirements:

- Maintain record keeping as it relates to job (student) performance
- Practice workplace skills including self-motivation, teamwork and conflict resolution
- Demonstrate correct equipment use per handbooks and demonstrations
- Demonstrate knowledge of video and editing equipment features and purposes
- Demonstrate video planning process: storyboard, script writing, casting
- Demonstrate understanding of pre-production: lighting, capturing sound, visual aesthetics
- Demonstrate understanding of production: directing, acting, scheduling
- Demonstrate understanding of post-production: editing, adding effects, transitions, music
- Demonstrate an understanding of the screening process

In the event of over enrollment first criteria for consideration shall be current daily attendance.

*Due to the vocational nature of this course, equipment and demonstrations may not be available during unscheduled times. Therefore this class may not be suited for those with attendance problems.

TWO-HOUR BLOCK: Second Semester, Afternoon Only

Recommended Courses: Intro. to Broadcasting and/or Broadcast Media Literacy completed in the first year, Sound Studio completed in the second year, prior to enrolling in this course.

Recommended Skills: Tech Essentials, grammar proficiency, storytelling, research skills

Prerequisite Courses: English 1 and 2

Applies toward graduation requirements of: Practical Arts or Visual/Performing Arts.

Geometry in Construction	Credit ½ Math / ½ Practical Arts (each semester)	10
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Course Name	Year Long Class (Semester 1 & 2)	Grade Level
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Course Description: This course is designed to show the relevance of Geometry through a variety of practical applications related to but not limited to the construction industries. Students will be: participating in hand-on activities, working in a classroom & shop setting, participating in the construction of a house, and investigating business components in construction and related industries. Students who are interested in architecture, interior design, engineering, construction management, drafting, building trades (electrical, plumbing, etc.) as well as all aspects of manufacturing would benefit from this course. The objectives of this course are to promote academic rigor and real world relevance by having students solve multi-step problems, engage in math concepts that appear in different phases of construction and work in a team setting.

Essential Requirements:

- Students will participate in all aspects of safety, related to construction and manufacturing industries.
- Students will work in shop and construction site environments.
- Students will successfully complete the Geometry requirements as indicated in the All Billings Curriculum.

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

FALL ENROLLMENT ONLY: This is a year-long class.

Prerequisite Courses: Algebra 1 with a C grade or better

Applies toward graduation requirements of: Math (Technical Geometry) /Practical Arts (Geometry in Construction)

Carpentry 1
Construction Technique 1 **Credit 1 1/2** **11, 12**

Course Name **First Year - Semester 1** **Grade Level**

Course Description: First year house construction students will work hands-on in the construction of this year's student built house. Students will develop skills and valuable construction knowledge in the first phases of the building construction trades. Students will learn the dynamics of a real residential house construction site. Students will receive on the job training as they learn the trades and experience the work ethics of residential construction.

Essential Requirements:

- Students will complete: drywall, perfataping, painting, trim, carpentry, cabinet installation, floor covering, cultured stone applications, finish plumbing, concrete framing, deck construction, detailing out a house

In the event of over enrollment first criteria for consideration shall be current daily attendance.

THREE-HOUR BLOCK - NO EXCEPTIONS!

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Carpentry 2
Construction Technique 2 **Credit 1 1/2** **11, 12**

Course Name **First Year - Semester 2** **Grade Level**

Course Description: First year house construction students will continue to work hands-on in the construction of this year's student built house. Students will develop skills and valuable construction knowledge in the remaining phases of the building construction trades. Students will learn the dynamics of a real residential house construction site. Students will receive on the job training as they learn the trades and experience the work ethics of residential construction. First year second semester students will enjoy the satisfaction of completing one Career Center home.

Essential Requirements:

- Students will complete: drywall, perfataping, painting, trim, carpentry, cabinet installation, floor covering, cultured stone applications, finish plumbing, concrete framing, deck construction, detailing out a house

In the event of over enrollment first criteria for consideration shall be current daily Attendance.

THREE-HOUR BLOCK - NO EXCEPTIONS!

Prerequisite Courses: Construction Fundamentals 1, Carpentry 1, Construction Technique 1 with a grade of C or better, or consent of instructor with recommendation of administrator/counselor.

Applies toward graduation requirements of: Practical Arts

House Building 1

Construction Technique 3

Credit 1 1/2

12

Course Name

Second Year - Semester 1

Grade Level

Course Description: Second year house construction students will work with first year students to complete this year's student built house. The second year student will serve as a leader to demonstrate good work ethics and help guide first year students through the building construction trades. Second year students will expand their knowledge and refine their skills as they work to complete a second house. The second year student should achieve greater proficiency in their work and the development of their skills.

Essential Requirements:

- Students will complete: framing, concrete finishing, Western balloon framing, roofing, heating and cooling (mechanical work), wiring, insulation, drywall hanging, drywall perfataping
- Ability to work safely, independently and without constant supervision

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Second Year Students

THREE-HOUR BLOCK – NO EXCEPTIONS!

Prerequisite Courses: Successful completion of one semester of Construction Fundamentals 1, Carpentry 1, Construction Technique 1, or Construction Fundamentals 2, Carpentry 2, Construction Technique 2 with a C grade or better or consent of instructor with recommendation of counselor/administrator.

Applies toward graduation requirements of: Practical Arts.

Building Trades 2

House Building 2

Construction Technique 4

Credit 1 1/2

12

Course Name

Second Year - Semester 2

Grade Level

Course Description: Second year house construction students will receive the hands-on training that comes with working through the last phases of house construction. Second year students will experience the challenges of house construction with a greater level of understanding. Students will benefit from the development of skills with a higher proficiency and the diverse knowledge that comes with two years of training. Students will enter the job market with confidence and success.

Essential Requirements:

- Students will complete: drywall perfataping, painting, trim carpentry, cabinet installation, floorcoverings, cultured stone applications, finish plumbing, concrete framing, deck construction, detailing out a house
- Ability to work safely, independently and without constant supervision

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Second Year Students

THREE-HOUR BLOCK - NO EXCEPTIONS!

Prerequisite Courses: Successful completion of Building Trades 1, House Building 1, Construction Technique 3 with a grade of C or better or consent of instructor with recommendation of counselor/administrator.

Applies toward graduation requirements of: Practical Arts

Café Protégé 1

Credits 2 (1 credit per semester)

11, 12

Course Name

Year Long Class (Semesters 1 & 2)

Grade Level

CAREER CENTER

Course Description: Café Protégé is a **year-long class**. The course introduces students to commercial foodservice concepts not found in more traditional F.A.C.S. programs. Classes are held off campus at Montana State University, College of Technology and are held in two-hour blocks. In addition to the fun of food preparation, topics such as customer relations, accounting, food cost controls, and marketing are covered. Students will be trained, certified and receive the ServSafe Employee Certification. This certification expires in four years.

Students are strongly urged to work in a paid internship at local food service establishments, if they choose to receive certification from the National Restaurant Association Education Foundation. Students can receive dual credit (both high school graduation credit and college credit) at most major culinary schools.

In addition to internships, students will also participate in School District catering projects and local benefits which include menu planning, purchasing, preparation, set up, service and clean up.

Fees Charged: Each semester, a \$25.00 lab fee is required. Chef's coats will be provided.

Essential Requirements:

- Preparing for successful careers in the food service industry
- Understanding successful customer relations
- Preventing accidents in the workplace
- Demonstrating proper food preparation techniques by planning, preparing and serving foods
- Exploring workplace communication, time management, and personnel management

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

**Home Design
Interior Design**

Credit 1

11, 12

Course Name **Semester 1** **Grade Level**

Course Description: The interior design class provides a hands-on approach to learning. Highlights include: Exterior house design, kitchen design, principals and elements of design, selection of: wallpaper, paint, lighting, flooring, tile, faux finishes, and fabrics to be used in the student built house. The class is designed to meet the needs of students who are post secondary bound as well as providing students with the skills needed to decorate their own personal living environment.

Essential Requirements:

- Apply principles and elements of design to create an interior design plan for a student built house.
- Evaluate various housing products based on a specific design need.
- Communicate design ideas through visual presentation.
- Work in cooperative groups to implement a design plan for the Career Center student built house.
- Explore career options within the design field.

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Fall Semester ONLY

TWO-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Home Improvement Design Improvement	Credit 1	11, 12
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Course Name

Semester 2

Grade Level

Course Description: The Home Improvement class provides students with the essential skills and knowledge needed to make basic home improvements and repairs through a hands-on approach to learning. Highlights include: wallpaper installation, faux painting, stenciling, basic wall repair, and finish work. Students will become familiar with several different power tools. This class will teach basic skills necessary to maintain and enhance a home.

Essential Requirements:

- Communicate design ideas through visual presentation
- Calculate quantities, measure, order, and install wallpaper
- Develop skills needed to complete stenciling, faux finishing and sheet rocking
- Analyze career options available in the Home Improvement industry

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Spring Semester Only

TWO-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Anatomy & Physiology

Applied Medicine (Med. Careers)

Credit 1

12

Course Name **Semester 1 or 2** **Grade Level**

Course Description: This block class includes an academic Human Anatomy and Physiology. This block includes Applied Medicine where students meet over 50 healthcare professions in the classroom, on job shadows or rotations. The class meets daily at Billing Clinic Hospital. It is in partnership with Billings Clinic, St. Vincent Healthcare, Turley Dental Clinic and RiverStone Health.

Essential Requirements:

- Strict adherence to confidentiality
- Adherence to professional dress code
- Practice universal precautions
- Maintain a passing grade
- Entry into this class is through an application process at the home school

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Semester 1 or 2 - a.m. & p.m. class

TWO-HOUR BLOCK

Prerequisite Courses: Biology and Chemistry, (science pathway suggested); Must provide your own transportation

Suggested Prerequisite: Physics

Applies toward graduation requirements of: Anatomy/Physiology = 0.5 science credit – Applied Medicine = 0.5 practical arts credit

**Manufacturing Processing 1
Manufacturing Design 1**

Credit 1

11, 12

Course Name	Semester 1 or 2 - 2nd Year	Grade Level
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Course Description: This course allows students to apply their metal working skills to advanced manufacturing applications such as pipe welding, build to print manufacturing, automated plasma cutting, and metal working design. Students will be given the opportunity to obtain certified welder status by testing in accordance with nationally recognized welding codes such as AWS D1.1.

Essential Requirements:

- Ability to work safely in a shop environment
- Ability to work in groups with peers
- Ability to work independently to complete given assignments
- Blue print reading
- Basic Math
- Basic Measuring Skills

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Must have maintained a grade of C or better in the 1st three semesters of the program.

TWO-HOUR BLOCK

Prerequisite Courses: Must have completed Manuf. Process 1 and Manuf. Design 1, Manuf. Process 2 and Manuf. Design 2, Manuf. Tech 1 and Manuf. System 1 with a grade of C or better or by instructor/administrator approval.

Applies toward graduation requirements of: Practical Arts.

Machinist Technology-Manual	Credit 1/2	11, 12
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Course Name	Semester 1 or 2	Grade Level
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Course Description: This course explores and develops skills in basic machining technology as it applies to modern machining. It combines the applied technology of machining on lathes, mills, and drill presses. Students will complete a series of projects which will teach them skill sets which include: precision measurement using micrometers and calipers, threading, tapping, tapering, knurling, and traditional operation of the lathes, mills and drill presses. Students will have the ability to manufacture precision parts and produce quality projects upon completion of class.

Essential Requirements:

- Ability to follow written and verbal instructions
- Ability to understand and implement safety aspects of machining technology
- Ability to work safely with industrial equipment
- Ability to use basic math and precision measuring techniques
- Ability to perform basic machining tasks on lathes and mills
- Ability to work in groups with peers
- Ability to work independently and complete tasks in appropriate time allotted

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Prerequisite Courses: None. Of the machining classes offered it is recommended that this course be taken first.

Applies toward graduation requirements of: Practical Arts.

CNC Machining Technology	Credit 1/2	11, 12
Course Name	Semester 1 or 2	Grade Level

91 Revised 11/10/2011

Course Description: This course will introduce students to the world of Computer Numerically Controlled Machining and Cutting. Students will learn the basic concepts of 3D drafting and solid modeling then learn to convert their designs into actual parts by utilizing our CNC Mill and plasma cutter. Students will leave this class with a basic foundation necessary for the manufacturing of precision components.

Essential Requirements:

- Basic Computer Skills
- Ability to work safely in a shop environment
- Ability to work in groups with peers
- Ability to work independently to complete given assignments

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Prerequisite Courses: Machinist Technology (Manual) is recommended 1st before taking CNC Machining Technology, and / or recommendation of instructor, counselor, or administrator.

Applies toward graduation requirements of: Practical Arts.

CNC Machining Technology & Design	Credit 1/2	11, 12
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Course Name	Semester 1 or 2	Grade Level
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Course Description: This course explores advanced applications of Computer Numerically Controlled machining through the use of Computer Aided Design (CAD) in conjunction with Computer Aided Manufacturing (CAM). Students will have the opportunity to learn advanced skills in precision measuring, use of digital read outs, drawing with basic CAD, and basic machine programming. These skills will be combined to program CNC lathes, mills, and plasma tables to machine precision parts during class.

Essential Requirements:

- Ability to follow written and verbal instructions.
- Ability to understand and implement safety aspects of machining technology.
- Ability to work safely with industrial equipment.
- Ability to use basic math and precision measuring techniques.
- Ability to perform basic machining tasks on lathes and mills.
- Ability to work in groups with peers.
- Ability to work independently and complete tasks in appropriate time allotted.

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Prerequisite Courses: Completion of the following with a grade of C or better- Machinist Tech. (manual), CNC Machining Tech. and / or recommendation of instructor/administrator.

Applies toward graduation requirements of: Practical Arts

+ Construction Fundamentals 1

+ Carpentry 1

+ Construction Techniques 1	Credit 1 1/2	11, 12
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Course Name	Semester 1 – 1st Year	Grade Level
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Course Description: Construction Fundamentals is an in-shop experience, in that the course is designed to teach all safety and tool operation, as well as give the students as many experiences in dealing with the construction trades as possible. This is a progressive type program, as skill levels increase, so will the tasks required of each student. As students learn and gain the confidence needed to be successful they will be exposed to a multitude and varying array of construction trades techniques.

Essential Requirements:

- Ability to follow instruction, written and verbal.
- Work safely with industrial equipment
- Ability to understand safety aspects
- Basic plumbing/wiring
- Measuring, basic math skills
- Ability to take notes and do small scale drawings

In the event of over enrollment first criteria for consideration shall be current daily attendance.

First Year

This course is offered periods 1-2-3 & 5-6.

**THREE-HOUR BLOCK A.M. OR TWO HOUR-BLOCK P.M. - consisting of
+Construction Fund. 1 and +Carpentry 1**

Prerequisite Courses- Strong math background and ability to work appropriately and safely with equipment

Applies toward graduation requirements of: Practical Arts

+ **Construction Fundamentals 2**
+ **Carpentry 2**
+ **Construction Techniques 2**

Credit 1 1/2
93

11, 12
Revised 11/10/2011

Course Name	Semester 2 – 1st Year	Grade Level
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Course Description: Construction Fundamentals is an in-shop experience, in that the course is designed to teach all safety and tool operation, as well as give the students as many experiences in dealing with the construction trades as possible. This is a progressive type program, as skill levels increase, so will the tasks required of each student. As students learn and gain the confidence needed to be successful they will be exposed to a multitude and varying array of construction trades techniques.

Essential Requirements:

- Ability to follow instruction, written and verbal
- Work safely with industrial equipment
- Ability to understand safety aspects
- Basic blue print reading
- Measuring, basic math skills
- Basic wiring/plumbing techniques
- Ability to take notes and do small scale drawings
- Safety is a number one priority for participation in this course. An IEP review will take place if safety for all stakeholders is a concern
- Sheetrock/perfataping/texturing applications
- Ability to work safely, independently and without constant supervision

In the event of over enrollment first criteria for consideration shall be current daily attendance.

First year

This course is offered periods 1-2-3 & 5-6.

THREE-HOUR BLOCK A.M. OR TWO-HOUR BLOCK P.M. – consisting of +Construction Fundamentals 2 and +Carpentry 2

Prerequisite Courses: Strong math background and ability to work appropriately and safely with equipment. +Construction Fundamentals 1, +Carpentry 1, +Construction Tech. 1, successfully completed. Counselor, instructor/administrator approval.

Applies toward graduation requirements of: Practical Arts

+ **Building Trades 1**
 + **House Building 1**
 + **Construction Techniques 3**

Credit 1 1/2

12

Course Name	Semester 1 -2nd Year	Grade Level
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Course Description: Building Trades is an in-shop experience, in that the course is designed to teach all safety and tool operation, as well as give the students as many experiences in dealing with the construction trades as possible. This is a progressive type program, as skill levels increase, so will the tasks required of each student. As students learn and gain the confidence needed to be successful they will be exposed to a multitude and varying array of construction trades techniques.

Essential Requirements:

- Ability to follow instruction, written and verbal
- Work safely with industrial equipment
- Ability to understand safety aspects
- Basic blue print reading
- Measuring, basic math skills
- Basic wiring/plumbing techniques
- Ability to take notes and do small scale drawings
- Sheetrock/perfataping/texturing applications

In the event of over enrollment first criteria for consideration shall be current daily attendance

This course is offered periods 1-2-3 & 5-6.

THREE-HOUR BLOCK a.m. or TWO-HOUR BLOCK p.m.- Consisting of Building Trade1 and House Building 1

Second Year

Prerequisite Courses: Strong math background and ability to work appropriately and safely with equipment. Satisfactory completion of both semesters of : **+Const. Fundamentals 1 & 2, +Carpentry 1 & 2, +Construction Techniques 1 & 2 or Instructor/Administrative approval.**
Applies toward graduation requirements of: Practical Arts.

+ Building Trades 2		
+ House Building 2		
+ Construction Techniques 4	Credit 1 1/2	12

Course Name Semester 2 – 2nd Year **Grade Level**

Course Description: Building Trades is an in-shop experience, in that the course is designed to teach all safety and tool operation, as well as give the students as many experiences in dealing with the construction trades as possible. This is a progressive type program, as skill levels increase, so will the tasks required of each student. As students learn and gain the confidence needs to be successful they will be exposed to a multitude and varying array of construction trade techniques.

Essential Requirements:

- Ability to follow instruction, written and verbal
- Work safely with industrial equipment
- Ability to understand safety aspects
- Basic blue print reading
- Measuring, basic math skills
- Basic wiring/plumbing techniques
- Ability to take notes and do small scale drawings
- Safety is a number one priority for participation in this course. An IEP review will take place if safety for all stakeholders is a concern
- Sheetrock/perfataping/texturing applications
- Ability to work safely, independently and without constant supervision

In the event of over enrollment first criteria for consideration shall be current daily attendance.

This course is offered periods 1-2-3 & 5-6

THREE-HOUR BLOCK a.m. or TWO-HOUR BLOCK p.m. – Consisting of Building Trades 2 and House Building 2

Second Year

Prerequisite Courses: Strong math background and ability to work appropriately and safely with equipment. +Building Trades 1, + House Building 1, +Construction Techniques 3 successfully completed and /or counselor instructor/administrative approval.

Applies toward graduation requirements of: Practical Arts

Auto Care **Credit 1/2** **11, 12**

Course Name **Semester 1 – 1st Year** **Grade Level**

Course Description: Auto Care is an easy to understand up-to-date course summarizing the operation and repair of all makes and models of vehicles. This course stresses modern automotive technology but does not neglect older systems still in service. Auto Care introduces the student to fundamentals of automotive systems and goes on to provide a general understanding of how to service and repair each system. The course also provides information to students to help them access technical information for system service, automotive careers and certifications.

Essential Requirements:

- Demonstrate and understanding of automotive literacy and safety
- Demonstrate an understanding of tools and equipment
- Demonstrate an understanding of basic engines
- Demonstrate an understanding of engine design, classification and construction
- Demonstrate an understanding of battery testing and service

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Recommended to take along with Auto Electric I and Suspension/Steering in a 3 hour block

Prerequisite Courses: Math and Science recommended

Applies toward graduation requirements of: Practical Arts

Power Trains	Credit 1/2	11, 12
Course Name	Semester 2 – 1st Year	Grade Level

Course Description: A theory driven class combining equal time on lecture/demonstration and performance/lab (shop) activities. The components covered include, but are not limited to: clutches, manual transmission/transaxles, front drive axles, drive shafts and u-joints, differentials and drive axles, and four-wheel drive systems.

Essential Requirements:

- Apply basic skills in clutch removal and installation
- Basic skills in differentials
- Basic skill in manual transmissions and transaxles
- Basic skills on industry standards

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS – Recommended to take along with Engine Fundamentals and Brakes in a 3 hour block

Prerequisite Courses: Math and Science recommended

Applies toward graduation requirements of: Practical Arts

Engines

Auto Power Trains

Credit 1

12

Course Name

Semester 1 or 2 – 2nd Year

Grade Level

Course Description: (This course has been divided into two sections, Engines and Automatics. Students will be switched from one course to the other at semesters end.)

The engines course consists of engine rebuild, performance, and diagnostics. The semester begins with disassembling, measuring, reassembling, and testing a car or light truck engine. In the classroom students will study different engine systems as well as engine rebuilding techniques. After completing the engine rebuild section, students will focus on learning diagnostic skills. This course entails both OBD I and OBD II diagnostic systems as well as fuel injection diagnostics. Students will become fluent with scan tools and digital oscilloscopes. Lab projects consist of school vehicles containing fault boards that allow students to practice diagnostic procedures while repairing the electrical fault. A basic knowledge of engine fundamentals and diagnostic procedures will prepare students for entry into college and the automotive industry.

Essential Requirements:

- Completion of engine measurement lab sheets
- Assembled engine must run for a minimum of three minutes
- Ability to effectively operate a scan tool and oscilloscope
- Successfully diagnose common electrical faults

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: Students must complete 5 1st year automotive classes with three being in the second semester. All classes must be a C grade or better or by administrator’s consent.

Applies toward graduation requirements of: Practical Arts.

Suspension and Steering

Credit 1/2

11, 12

Course Name

Semester 1 – 1st Year

Grade Level

Course Description: Suspension and Steering is a course that trains students in the automotive suspension, steering and alignment areas. The course material covers the principles of automotive suspension/steering systems and four-wheel suspension alignment. Course content provides the student the opportunity to acquire marketable skills by training in wheel alignment and the testing, diagnosis, and repair of steering.

Essential Requirements:

- Locating and identifying chassis, suspension and steering components
- Understanding alignment angle fundamentals
- Rebuilding chassis and suspension systems to OEM specifications
- Ability to use precision measuring equipment
- Removing and replacing steering and suspension components
- Demonstrate final inspections and alignment adjustments of all steering systems

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS – Recommended to take along with Auto Care and Auto Electric I in a 3 hour block

Prerequisite Courses: Math and Science recommended.

Applies toward graduation requirements of: Practical Arts

Auto Electric I	Credit 1/2	11, 12
Course Name	Semester 1 – 1st Year	Grade Level

Course Description: A theory driven class based on equal time spent in lecture/discussion and lab performance. The course covers electrical theory, diagnosing procedures, and service procedures of the automotive electrical systems. Students will use the A-Tech trainer system to learn to use Ohms Law to diagnose problems in various automotive electric systems. The second half of the course covers the operation and testing of the following: battery, starting, charging, emission, ignition, and fuel systems on modern domestic and import automobiles.

Essential Requirements:

- Must pass shop safety tests
- Must follow all safety rules in the shop
- Display proper usage of tools including DVOM
- Ability to perform Ohm’s Law calculations
- Disassemble/reassemble and test automotive electrical components

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS – Recommended to take along with Auto Care and Suspension and Steering in a 3 hour block

Prerequisite Courses: Math and Science recommended. Students should have had at least a “C” in Algebra I, Algebra II is recommended.

Applies toward graduation requirements of: Practical Arts

Auto Electric II	Credit 1/2	11, 12
Course Name	Semester 1 or 2	Grade Level

Course Description: This course is designed to prepare students for diagnosing electrical faults in the automotive industry. Students will be trained in the classroom as well as in the lab area. Atech fault insertion equipment is utilized in the classroom for Electrical I and II courses. This program builds basic diagnostic skills as well as an understanding of electrical theory.

Essential Requirements:

- Digital Electronics (Transistors, Diodes, Resistors, Capacitors...)
- OBD I and OBD II Diagnostics
- Electrical System Schematic Analysis
- Live Vehicle Fault Insertions
- Engine Sensor/Actuator Theory and Testing
- DVOM and Oscilloscope Testing
- Emissions Testings

In the event of over enrollment first criteria for consideration shall be current daily attendance.

Second criteria will be given to students in their senior year.

ONE-HOUR CLASS

Prerequisite Courses: Students must earn a “C” or better in Auto Electric I, or instructor, counselor/administrator approval.

Applies toward graduation requirements of: Practical Arts

Brakes	Credit 1/2	11, 12
Course Name	Semester 2 - 1st Year	Grade Level

Course Description: Course content provides the student the opportunity to acquire marketable skills by training in the diagnosis, repair, and/or service technology of hydraulic and anti-lock brakes systems.

Essential Requirements:

- Understanding of safety procedures utilized in the automotive shop
- Understanding automotive terminology as it pertains to brake systems
- Demonstrate operational theory of a brake system
- Demonstrate rebuilding and bleeding of brake system
- Adjusting, machining and reconditioning of brake system
- Final inspections, correct reassembly, and adjustments

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE HOUR CLASS

Recommended to take along with Power Trains and Engine Fundamentals in a 3 hour block.

Prerequisite Courses: Must pass semester 1 of automotive classes with a grade C or better, or instructor, counselor/administrator approval.

Applies toward graduation requirements of: Practical Arts

Engine Fundamentals

Credit 1/2

11, 12

Course Name

Semester 2 – 1st Year

Grade Level

Course Description: This course is a lecture, demonstration, and performance course. This

course will provide the student with a basic understanding of the construction, operational fundamentals, technical measurements, overhaul and rebuilding of a small engine. The small engine is utilized to allow the students to disassemble, repair, overhaul and be able to identify all the operational parts of any engine. The students will have classroom activities that will introduce them to the mechanical parts and operational theory of the engine. Each student will gain understanding of two and four cycle engines theory, safety, fastener tools, equipment, measuring and job skills to apply this understanding.

Essential Requirements:

- Demonstrate proper tool selection and usage
- Demonstrate the use of precision measuring tools
- Demonstrate an understanding of engine operating principles
- Identification of engine components
- Demonstrate how to disassemble and reassemble an engine
- Demonstrate how to trouble shoot an engine

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

Recommended to take along with Power Trains and Brakes in a 3 hour block.

Prerequisite Courses: Must pass semester 1 of automotive classes with a grade of C or better, or instructor, counselor/ administrator approval.

Applies toward graduation requirements of: Practical Arts

**Drive Ability Performance
Engine Systems**

Credit 1

12

Course Name Semester 1 or 2 - 2nd year **Grade Level**

This course has been divided into two sections, Engines and Automatics. Students will be switched from one course to the other at semesters end.

Course Description: The automatics course consists of transmission rebuild, diagnosis and testing on the dynamometer. All students are required to rebuild a minimum of two transmissions and must test them on the dynamometer. They will follow industry rebuild procedures and complete all measurements required. Students are also required to perform a transmission flush and filter change.

Essential Requirements:

- Completion of transmission measurement lab sheets
- Assembled transmission must run through all gears at proper pressures
- Successfully perform fluid and filter changes on live vehicles

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: Students must complete 5 1st year automotive classes with three being in the second semester. All classes must be a “C” grade or better or by administrator consent.
Applies toward graduation requirements of: Practical Arts

Early Child Fundamentals
Early Child Physical Development
Early Child Intellectual Development **Credit 1 1/2** **11, 12**

Course Name	Semester 1	Grade Level
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Course Description: You will gain practical teaching experience in one of the two Career Center Preschools, after learning teaching techniques in the high school classroom pertaining to children’s physical and cognitive development. Thematic lesson planning and teaching through centers will be stressed. Opportunities are provided to learn what is entailed in various specialized fields such as special education, speech, physical and occupational therapies and pediatric nursing.

Whatever path in life you choose children will likely be a part of it, don’t miss this opportunity to brighten your life and the lives of many children.

Essential Requirements:

- Early childhood education training
- Teaching in the preschool
- Lesson planning for preschool
- Observation of preschool children
- Study of areas of child development
- Written evaluations

In the event of over enrollment first criteria for consideration shall be current daily attendance.

THREE-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Early Child Physical Development		
Early Child Intellectual Development	Credit 1	11, 12

Course Name

Semester 1

Grade Level

Course Description: You will gain practical teaching experience in one of the two Career Center Preschools, after learning teaching techniques in the high school classroom pertaining to children's physical, social, emotional and cognitive development. Opportunities are provided to learn what is entailed in various specialized fields such as special education, speech, physical and occupational therapies and pediatric nursing.

Whatever path in life you choose children will likely be a part of it, don't miss this opportunity to brighten your life and the lives of many children.

Essential Requirements:

- Early childhood education training
- Teaching in the preschool
- Lesson planning for preschool
- Observation of preschool children
- Study of areas of child development
- Written evaluations

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Children & Careers

Early Child Social Development

Early Child Emotional Development

Credit 1 1/2

11, 12

Course

Semester 2

Grade Level

Course Description: You will gain practical teaching experience in one of the two Career Center Preschools, after learning teaching techniques in the high school classroom pertaining to children’s physical, social, emotional and cognitive development. Thematic lesson planning and teaching through centers will be stressed. Opportunities are provided to learn what is entailed in various specialized fields such as special education, speech, physical and occupational therapies and pediatric nursing.

Whatever path in life you choose children will likely be a part of it, don’t miss this opportunity to brighten your life and the lives of many children.

Essential Requirements:

- Early childhood education training
- Teaching in the preschool
- Lesson planning for preschool
- Observation of preschool children
- Study of areas of child development
- Written evaluations

In the event of over enrollment first criteria for consideration shall be current daily attendance.

THREE-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Early Child Social Development
Early Child Emotional Development **Credit 1** **11, 12**

Course Name **Semester 2** **Grade Level**

Course Description: You will gain practical teaching experience in one of the two Career Center Preschools, after learning teaching techniques in the high school classroom pertaining to children’s physical, social, emotional and cognitive development. Opportunities are provided to learn what is entailed in various specialized fields such as special education, speech, physical and occupational therapies and pediatric nursing.

Whatever path in life you choose children will likely be a part of it, don’t miss this opportunity to brighten your life and the lives of many children.

Essential Requirements:

- Early childhood education training
- Teaching in the preschool
- Lesson planning for preschool
- Observation of preschool children
- Study of areas of child development
- Written evaluations

In the event of over enrollment first criteria for consideration shall be current daily attendance.

TWO-HOUR BLOCK

Prerequisite Courses: None

Applies toward graduation requirements of: Practical Arts

Elementary Internship
Fundamentals of Elementary Education
Elementary Teaching Techniques **Credit 1 1/2** **12**

Course Name **Semester 1 or 2** **Grade Level**

Course Description: In this internship you are placed with a master teacher in a preoperational age classroom. The academic study emphasized is a foundation in working with the primary age level child. This content is applied to the teaching opportunity in an elementary school.

Essential Requirements:

- Lesson planning, observing, teaching preoperational children
- Study of areas of child development
- Written evaluations

In the event of over enrollment first criteria for consideration shall be current daily attendance.

THREE-HOUR BLOCK

Prerequisite Courses: 2 semesters of Early Childhood classes - Instructor discretion, with a Grade of B or better in fall & spring Early Childhood Education courses.

Applies toward graduation requirements of: Elective Credit

PLTW Introduction to Engineering Design (Year Long Course) Credit 1/2 (each semester) 10, 11, 12

Course Name	Semesters 1 & 2 -1st Year	Grade Level
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Course Description: This exciting class is intended for students who are interested in an engineering or architectural field. The engineering industry currently has over 1 million jobs available without trained individuals to fill them. Furthermore, the dropout rate for engineering programs is nearly 50%. This program is designed to help students succeed in college and graduate as engineers.

This course teaches problem-solving skills used in the design development process. Models of product solutions are created, analyzed and communicated using the solid-modeling computer design software AUTODESK Inventor. This course, combined with traditional mathematics courses and science courses in high school, introduces students to the scope, rigor and discipline of engineering prior to entering college. Students will understand technology as a tool for problem solving, the scientific process, engineering problem solving and the application of technology. Additionally, students will be prepared for the rigor of college level engineering programs.

Students are eligible for 3 semester college credits upon successful completion of the course and college exam. Approximately 85% * of students may receive college credit (*statistics from previous years average). Montana State University accepts these credits for their engineering majors.

Students should be taking or plan to take higher level math and science for 4 years of high school. Students should be in the top 1/3 of their class. Students should be interested in pursuing a degree in science, math, technology or engineering. Other important traits are: interested in computers, self-motivated, creative with art and design and enjoys solving problems.

For additional information: www.pltw.org

Essential Requirements:

- Understand technology as a tool for problem solving
- Understand the scientific process, engineering problem solving and application of technology.
- Understand technological systems as they interface with other systems.

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

FALL ENROLLMENT ONLY: This is a yearlong class.

Highly Recommended: Students should be on a 4-year math track.

Applies toward graduation requirements of: Practical Arts.

PLTW Principles of Engineering (Year Long Course) Credit 1/2 (each semester) 11, 12

Course Name Semesters 1 & 2 - 2nd/3rd Year Grade Level

Course Description: This survey course of engineering exposes students to some of the major concepts they'll encounter in a post-secondary engineering course of study. Students have an opportunity to investigate engineering and high-tech careers and to develop skills and understanding of course concepts. Students employ engineering and scientific concepts in the solution of engineering design problems. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges. Students also learn how to document their work and communicate their solutions to peers and members of the professional community.

This course has been instrumental in helping students choose a post-secondary program of study from the numerous fields in engineering offered in college.

Students are eligible for 3 semester college credits upon successful completion of the course and college exam. Approximately 85% * of students may receive college credit (*statistics from previous years average). Montana State University accepts these credits for their engineering majors.

Students should be taking or plan to take higher level math and science for 4 years of high school. Students should be in the top 1/3 of their class. Students should be interested in pursuing a degree in science, math, technology or engineering. Other important traits are: interested in computers, self-motivated, creative with art and design and enjoys solving problems. For additional information: www.pltw.org

Essential Requirements:

- Apply math and science to the engineering field
- Understand the problem solving process, manufacturing process and application of technology
- Understand technology and its effects on society

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

FALL ENROLLMENT ONLY: This is a year-long class.

Highly Recommended: Students should be on a 4-year math track.

Prerequisite Courses: Requires a grade of "C" or higher in Intro to Engineering Design

Applies toward graduation requirements of: Practical Arts.

PLTW Digital Electronics (Year Long Course) Credit 1/2 (each semester) 11, 12

Course Name Semesters 1 & 2 - 2nd/3rd Year Grade Level

Course Description: Digital Electronics is the foundation of all modern electronic devices. Think of how many devices you use that are programmable, have memory, or have a hexadecimal display. All of these use digital electronic components and circuitry. In this class students will learn to solder components, build printed circuit boards, design digital circuits, use multimeters/oscilloscopes and build/test the circuits on digital breadboards. College students majoring in the following engineering fields: mechanical, electrical, biomedical, aeronautical, aerospace, computer, industrial or electronics technology and computer networking will be required to learn digital electronics. The major focus of the DE course is to expose students to the process of combinational and sequential logic design, teamwork, communication methods, engineering standards and technical documentation.

This is a continuation of the PLTW engineering program at the Career Center. No prior electronics experience is necessary but this is a second/third year PLTW engineering course and is project-oriented with extensive computer use and practical labs.

Students should be taking or plan to take higher level math and science for 4 years of high school. Students should be in the top 1/3 of their class. Students should be interested in pursuing a college degree in engineering, science, mathematics, or technology.

Essential Requirements:

- Understanding of the engineering design process
- Problem solving, organization, and computer skills
- Willing to work in teams and individually

In the event of over enrollment first criteria for consideration shall be current daily attendance.

ONE-HOUR CLASS

FALL ENROLLMENT ONLY: This is a year-long class.

Highly Recommended: Students should be on a 4-year math track.

Prerequisite Courses: Requires a grade of "C" or higher in Intro to Engineering Design

Applies toward graduation requirements of: Practical Arts.

Independent Study**Credit 1/2****11, 12****Course Name****Semester 1 or 2****Grade Level**

Course Description: “Independent Study” is a course designed to expand the student’s knowledge of a subject and/or to develop skills to an extent not available in the present course selections at the Career Center. The independent study course must involve only one student and relate to a specific discipline.

1. Qualifications:

- The student must have superior grades in the selected field of study. His/her academic success must demonstrate exceptional ability and depth of understanding within the chosen field of study.
- The difficulty, complexity, and quality of the study is of paramount relevance of acceptance.
- The student’s course load and capabilities must permit a more demanding academic endeavor.
- The student’s personal attributes must include a strong sense of self-discipline, responsibility, and task commitment.
- **The student must take a minimum of five (5) academic classes.**
- **Independent Study can be taken only as a sixth class option.**
- The student must be a junior or senior.
- Students must make application for Independent Study by May 1st for first semester and by December 1st for second semester. Applications can be picked up in the Guidance Center.

2. Procedures:

- The candidate shall outline his/her proposed study course. This outline should include the purpose, objectives; techniques employed, and predicated outcomes.
- The outline must be approved by an instructor from the appropriate department. This instructor will remain as the independent course study supervisor.
- The teacher approved study plan must then be approved by the Independent Study team, which is made up of representatives from various departments within the school.
- A course study is to be started at the beginning of the semester.
- Upon completion of the study, the student must present a written summary of his/her study to the Independent Study Team.

3. Results and Recognition:

The course-study recognition and evaluation results will be noted on the student transcript. Upon successful completion of the course study, one-half (1/2) credit will be given.

Make sure students follow these steps!

- 1. Select a teacher with whom they wish to work**
- 2. Develop a study outline with the instructor.**
- 3. Have this outline signed by the instructor.**
- 4. Assoc. Principal, the teacher, and the school counselor must sign an acceptance of the independent study.**

This MUST be completed PRIOR to the beginning of the semester when student will take the class.

Prerequisite Courses: Teacher discretion

Applies toward graduation requirements of: Elective Credit

School to Career	Credit 1/2 to 1 1/2	12
Course Name	Semester 1 or 2	Grade Level

Course Description: Credit may be earned through a workplace experience plan that has been approved by the Career Center Director/and or Assistant Director. School to Career credit should be directly connected to a current course the student is enrolled in at the Career Center.

Specific criteria/standards and a contract must be signed by student and adhered to.

Note: Career Center students can apply for a one-hour class of School to Career.

This must have an Associate Principal and counselor approval.

Prerequisite Courses: Contract signed by employer indicating hours worked.

Applies toward graduation requirements of: Elective Credit