

TECHNOLOGY DEPARTMENT

AUTOMOTIVE TECHNOLOGY

<u>COURSE</u>	<u>COURSE LENGTH</u>	<u>CREDIT</u>
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<u>TRANSPORTATION SYSTEMS (1208)</u>	sem	½
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This course is an overview of Aerospace, Land and Marine Transportation systems. Vehicle types, engine variations, and auxiliary components are some areas of emphasis. Students will use a variety of tools and testing equipment in the study of various forms of transportation. Knowledge of mechanical systems and safe use of tools and equipment are stressed.

Note: This course is a prerequisite for those wishing to enroll in Land Transportation.

<u>LAND TRANSPORTATION (1250)</u>	sem	½
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This course will be an in-depth study of engine designs as well as a focus on areas of vehicle maintenance. Students will work on various lab activities and learn how to use diagnostic equipment and how to maintain and repair automotive vehicles. If a student does not have a personal vehicle, lab vehicles will be used for training purposes.

PREREQUISITE: Transportation Systems

<u>AUTOMOTIVE TECHNOLOGY I & II (1255/1256)</u>	fall, year	½, 1
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This is an advanced course that allows the students to learn further maintenance and repair of automotive vehicles. This course will focus on diagnostic thought process, diagnostic procedures, and use of diagnostic equipment.

PREREQUISITE: Land Transportation.

TECHNICAL & COMPUTER AIDED DRAWING

ALL DRAWING SEQUENCES

Students will learn drafting procedures and techniques to produce a variety of drawings using standard and computer based equipment. Computer Aided Drafting (CAD) is also examined in great detail and students are taught how to produce printed documents.

<u>TECHNICAL DRAWING (1212)</u>	fall	½
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This course focuses on developing basic and semi-advanced drafting skills. Students will learn to use the different types of drawing tools, and drawing procedures to create orthographic, pictorial, and working drawings. The course also provides a basic introduction to CAD.

<u>DESIGN & DRAWING FOR PRODUCTION – DDP (1228)</u>	year	1
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This course is a course designed to introduce students to technical drawing, machine and hand tool skills, problem solving and production methods. Students will learn drafting procedures to create working drawings, apply math and science concepts to their designs, which will prepare them to build and test a variety of models. Students will also study the design process and develop a mass production system. ***This course may be used to meet the art requirement for graduation.***

<u>CAD (COMPUTER AIDED DRAFTING) (1220)</u>	sem	½
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This course introduces many of the concepts used in implementation of computer aided drafting. Students use an IBM-compatible platform equipped with AutoCAD[®] software to produce mechanical drawings with an emphasis placed on the continuation of the competencies established in technical drawing.

PREREQUISITE: Technical Drawing or Design and Drawing for Production (DDP)

COURSE**COURSE LENGTH CREDIT****ARCHITECTURAL DRAWING (1224)**

sem

½

This course focuses on drafting related to architecture and construction. The students are required to produce floor plans, framing plans, electrical plans, and plumbing plans. The course also provides the students with the opportunity to build a scale size house frame, foundation, and passive solar home. This course also provides an introduction to architectural drawing using CAD.

PREREQUISITE: Technical Drawing or Design and Drawing for Production (DDP)

CAD II (1245)

sem

½

This course is a continuation of the study of concepts in CAD I. Students will use their knowledge of CAD to create larger and more complex drawings. Students will use a 3D modeling CAD application to create Feature-based parametric models. This method of 3D design prepares students for how industry uses CAD in real world design projects.

PREREQUISITE: CAD (computer aided drafting)

ENGINEERING TECHNOLOGY**PRINCIPLES OF ENGINEERING/
ROBOTICS TECHNOLOGIES (1264)**

year

1

This course is a hands-on, laboratory-based course integrating math, science, and technology which introduces students to concepts of engineering. Students will study mechanical, electrical, and pneumatic systems that will be integrated to create programmable robotic systems. Students will learn a programming language to program a microcontroller that will function as the "brain" of their robotic systems. Students will also be introduced to the systems model to ensure a well-designed and engineered system. They will be exposed to 3D modeling software to help them generate their designs. (Meets the 3rd year requirement for math or science).

PREREQUISITE: Successful completion of 10th grade Regents math and science, and maintaining an 85+ average.

WORLD OF TECHNOLOGY (1266)

year

1

The World of Technology will provide students with opportunities to develop an understanding of technology in the past, present, and future. Through design, construction and testing activities, students will model solutions to real life problems. Using science, math and technology, students will develop a better understanding of the technological world around them. Open to grades 10-12. (May be used to meet the 3rd year requirement for math or science in which case a weight of 1.0 will be used for ranking purposes).

COMPUTER INFORMATION TECHNOLOGY

<u>COURSE</u>	<u>COURSE LENGTH</u>	<u>CREDIT</u>
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<u>COMPUTER INFORMATION TECHNOLOGY I</u> (1268)	sem	½
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This course will provide students with the fundamental concepts related to computer hardware and introduce students to computer electronics. Students will learn how a computer works and will work with computer components (both new and old). The topics covered will include the history of computers and their impact on society, software, personal computer problem diagnosis, networking, telecommunications and the Internet.

PREREQUISITE: Completion of 8th grade or 9th grade technology with teacher recommendation.

<u>COMPUTER INFORMATION TECHNOLOGY II</u> (1270)	sem	½
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This course is a continuation of Computer Information Technology I. Emphasis will be placed on mastering skills in electronic diagnosis, operating systems (Windows and Linux), peer to peer and client-server networking (including Internet and intranet infrastructure), computer and network security and the use of computers as technical tools.

PREREQUISITE: Computer Information Technology I

CISCO NETWORKING ACADEMY

Cisco provides coursework for a complete range of basic through advanced networking concepts – from pulling cable, to such complex concepts as medium to large network design and implementation.

The Cisco Networking Academies program consists of four semesters. The program is designed to provide each student with the skills needed to design, build, and maintain small to medium-size networks. This provides them with the opportunity to enter the workforce and/or further their education and training in the computer-networking field. Upon completion of all four semesters, students will be prepared to take the Cisco Certified Network Associate (CCNA) Certification Exam.

<u>CNA - SEMESTERS 1 AND 2</u> (1272)	year	1
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This course will provide students with advanced concepts related to computer hardware, software and networking technologies. Students will continue to develop the skills necessary to prepare them for a future in the Information Technology (IT) field. In semester 1, students will gain in-depth knowledge about industry standards, network topologies, IP addressing (including subnet masks), networking components, and basic network design. In semester 2, students will begin router configuration and work with routing protocols. Upon completion of all four semesters, students will be prepared to take the Cisco Certified Network Associate (CCNA) Certification Exam.

<u>CNA - SEMESTERS 3 AND 4</u> (1273)	year	1
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This course is a continuation of semesters 1 and 2. Students will continue to develop the skills necessary to prepare them for a future in the Information Technology (IT) field. In semester 3, students will begin configuring advanced router configurations, local area network (LAN) switching and virtual LANs, explore advanced LAN and LAN switched design. In semester 4, students will begin WAN theory and design, WAN technologies (Point-to-Point Protocol and Frame Relay), network troubleshooting, and prepare for the Cisco Certified Network Associate (CCNA) Certification Exam.

PREREQUISITE: Completion of Cisco Networking Academy semesters 1 and 2.

OTHER TECHNOLOGY ELECTIVES

COURSE

COURSE LENGTH

CREDIT

PHOTOGRAPHY (1262)

sem

½

This course provides students with the opportunity to learn basic black and white photography. Topics covered are pinhole photography, film and paper processing, 35mm camera usage, photographic composition, and image correction. This class fosters creativity and exploration, which makes the program an excellent and enjoyable learning experience.

TECHNOLOGY EDUCATION

BASIC ELECTRICITY/ELECTRONICS (1236)

sem

½

A study of electricity in the home. Line and low voltage, electronic systems and circuit applications will be studied. Students will conduct a series of lab experiments that will explore the nature of electricity and a variety of circuits, sources and loads. Students will also construct a suitable project that will provide an opportunity to read circuit diagrams, assemble components, and use electronic test equipment.

CAREER & FINANCIAL MANAGEMENT (1258)

sem

½

This is a one-semester course that will provide students with the opportunity to learn about the features of our economy, develop and understand the skills and competencies needed for success in the workplace, begin to become "*Financially Literate*," and explore a variety of careers. Recommended for Family and Consumer Science and Technology majors who have not yet completed this requirement.

TECHNOLOGY/ENGINEERING

5-UNIT SEQUENCE EXAMPLES

<u>AUTOMOTIVE TECHNOLOGY SEQUENCE</u>	<u>CREDITS</u>
Career & Financial Management	½
Transportation Systems	½
Land Transportation	½
Automotive Technology I & II	1
Design and Drawing for Production	1
Computer Aided Drafting I	½
World of Technology	1
<u>Total Credits</u>	5

<u>ENGINEERING TECHNOLOGY SEQUENCE</u>	<u>CREDITS</u>
Career & Financial Management	½
Transportation Systems	½
Technical Drawing	½
Architectural Drawing	½
Computer Aided Drafting I	½
Computer Aided Drafting II	½
World of Technology	1
Principles of Engineering/Robotics	1
<u>Total Credits</u>	5

<u>INFORMATION TECHNOLOGY SEQUENCE</u>	<u>CREDITS</u>
Career & Financial Management	½
Technical Drawing	½
Principles of Engineering/Robotics	1
Computer Information Technology I & II	1
Cisco Networking Academy I & II	1
Cisco Networking Academy III & IV	1
<u>Total Credits</u>	5