

Pathways to Success

CEANCI's *Pathways to Success* programs are taught at off site locations, providing students with the opportunity to explore Career and Technical Education (CTE) courses in a variety of career clusters leading to employability and postsecondary education. The *Pathways* program offerings are listed below:

- Advanced Office
- Agricultural Science
- Automotive Service Technology
- Cisco Networking
- Construction
- Engineering (*Project Lead the Way*)
- Graphic Communications
- Horticulture Production & Management
- Introduction to Child Care & Development
- Marketing
- Web Design
- Welding Technology

Dual & Articulated Credit Agreements

CEANCI and RVC are committed to preparing students for employment and post-secondary education in an effective, efficient manner. Program articulation agreements between CEANCI and RVC will provide a seamless secondary and post-secondary education delivery system, meet labor market demand, and maximize resources. The agreement will also allow high school graduates to accelerate their career education program at Rock Valley College. **If high school graduates follow program policies, they may receive dual or articulated credit at Rock Valley College.**

PLEASE SEE THE COURSE DESCRIPTION PAGE FOR INFORMATION ON COLLEGE CREDIT FOR THE ABOVE LISTED COURSES.



Business Administration

COURSE DESCRIPTIONS

The following **Advanced Office** courses are offered for sophomores, juniors and seniors. Check with your high school counselor for course locations, times, and registration procedures. Enrollment is limited.

Advanced Office 1

Open to: Sophomores, Juniors and Seniors

Advanced Office 1 is designed to advance word processing and presentation skills in the first semester. Students will learn advanced skills in Word and Powerpoint 2007 including concepts of information processing and professional presentations that are required by both college and business. Second semester the Advanced Office student will learn the complexities of using spreadsheets. Students will learn advanced skills in Excel 2007 including graphing, formulas and functions with specific emphasis on integrating all three applications into professional business reports. Students successfully completing this course may elect to sit for the Microsoft Certified Application Specialist* (MCAS) Core Certification.

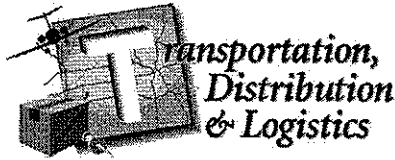
Prerequisites: Entry Level Office Applications Course

Advanced Office 2

Open to: Juniors and Seniors

Advanced Office 2 is to continue the students' study of Office applications focusing on Access. Students will study how to update databases, create queries and design customized reports utilizing Access 2007. Students successfully completing this course may select to sit for Microsoft Certified Application Specialists* (MCAS) Core Certification.

Prerequisites: Advanced Office 1



Automotive Technology

COURSE DESCRIPTIONS

The following **Automotive Technology** courses are offered for juniors and seniors. Check with your high school counselor for course locations, times, and registration procedures. Courses are offered at RVC and local High Schools. Enrollment is limited.

Introduction to Brake and Chassis Systems

Open to: Juniors and Seniors

The Introduction to Brake and Chassis Systems course offers the student an introduction to automotive brake and steering/suspension systems. Theory and operation of these systems is covered. Students will complete basic service procedures on brake and steering/suspension systems to prepare them for initial employment in the automotive service industry and further training in the Automotive Service Technology program. Safety in the use of automotive tools, equipment and chemicals is also covered.

Credit: 3 semester hours

RVC#: ATM 105

CEANCI #: 75003

Introduction to Automotive Electrical Systems and Powertrains

Open to: Juniors and Seniors

The Introduction to Automotive Electrical Systems and Powertrains course offers the student an introduction to automotive electrical and engine/transmission systems. Theory and operation of these systems is covered. Students will complete basic service procedures on electrical and engine/transmission systems to prepare them for initial employment in the automotive service industry and further training in the Automotive Service Technology program. Safety in the use of automotive tools, equipment and chemicals is also covered.

Credit: 3 semester hours

RVC#: ATM 106

CEANCI #: 75004

Engine Diagnosis and Repair

Open to: Juniors and Seniors

The Engine Diagnosis and Repair course provides basic information on gasoline engine theory, construction, systems, and diagnosis. This information will be applied to mechanical testing and repair procedures for the entire engine. The school provides late model engines for disassembly and reassembly.

Credit: 6 semester hours

RVC#: ATM 140

CEANCI #: 75007

Brakes

Open to: Seniors

The Brakes course continues the student's studies of automotive brake systems. This course covers in depth diagnosis, service, and repair procedures of base brake systems and anti-lock brake systems. Live work will be performed on customer vehicles in a real-world shop environment.

Prerequisite: ATM 105, ATM 106

Credit: 4 semester hours

RVC#: ATM 114

CEANCI #: 75006

Automotive Electrical Fundamentals

Open to: Seniors

Automotive Electronic Fundamentals is a continuation of Introduction to Automotive Electrical Systems and Powertrains. This class will emphasize electrical and electronic theory and analysis and introduce students to solid-state electronic components and systems. Students will determine circuit types and analyze both mathematically and with a digital multimeter.

Prerequisite: ATM 105, ATM 106

Credits: 4 semester hours

RVC#: ATM 107

CEANCI #: 75005

Steering and Suspension

Open to: Juniors and Seniors

The Steering and Suspension course continues the student's studies of automotive steering and suspension systems. This course covers in-depth diagnosis, service, and repair procedures of steering and suspension systems, and electronic suspension and steering. Live work will be performed on customer vehicles in a real-world shop environment.

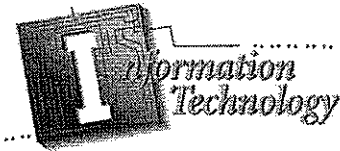
Prerequisite: ATM 105, ATM 106

Credit: 4 semester hours

RVC#: ATM 221

For the listed course(s), students may be eligible to receive Rock Valley College dual or articulated credit. For dual or articulated credit requirements, students should contact their high school counselor or the HS CONNECTIONS office.

CAREER COLLEGE courses are taken for College credit and can lead to a certificate.



Cisco Networking

COURSE DESCRIPTIONS

The following **Cisco Networking** courses are offered for juniors and seniors. In the two-year high school Cisco Networking program, students will take four Cisco Networking Academy courses and may earn a Cisco Certified Networking Associate (CCNA). Check with your high school counselor for course locations, times, and registration procedures. Enrollment is limited.

A+ Part 1

Open to: Sophomores, Juniors and Seniors

This course provides core knowledge in the latest hardware and software technologies, information security skills, safety and environmental issues, and soft skills for career development in the IT industry. This curriculum is provided online and aligns with the new Comp TIA A+ Essentials exam.

Prerequisites: Computer experience and interest in Computer Networking.

A+ Part 2

Open to: Sophomores, Juniors and Seniors

This course explores advanced computer concepts in greater depth and provides opportunities for students to participate in hands on labs in advanced installation of computers, peripheral devices, networks, and computer security. This curriculum is provided online and aligns with the new Comp TIA A+

Cisco Networking I

Open to: Juniors and Seniors

Networking Fundamentals is the first of four courses in the Cisco Networking Academy program. Topics include in this course are networking standards, networking terminology, protocols, safety, cabling, routers, and addressing. Decision-making and problem-solving techniques are applied to solve network problems. Additional instruction is provided in maintenance and use of software, tools, and equipment.

Prerequisites: Computer experience and interest in Computer Networking.

Cisco Networking II

Open to: Juniors and Seniors

Router Theory and Technologies is the second course of four courses in the Cisco Networking Academy program. Topics included in this course are safety, standards, TCP/IP, routing, and administration. Decision-making and problem-solving techniques are applied to solve network problems.

Cisco Networking III

Open to: Seniors

Advance Routing and Switching is the third course of four courses in the Cisco Networking Academy program. Topics included in this course are advanced router configuration, LAN switching, network management, and advanced network design. LAN segmentation and fast Ethernet will also be covered.

Prerequisites: Successful completion of *Cisco Networking II*.

Cisco Networking IV

Open to: Seniors

WAN Networking Design is the fourth course of four courses in the Cisco Networking Academy program. Topics included in this course are advanced network design projects and advanced network management projects. ISDN and PPP are some of the other topics included in this class.

For the listed course(s), students may be eligible to receive Rock Valley College dual or articulated credit. For dual or articulated credit requirements, students should contact their high school counselor or the HS CONNECTIONS office.



Engineering

COURSE DESCRIPTIONS

The following **Engineering Project Lead the Way** courses are offered for freshmen, sophomores, juniors, and seniors. Check with your high school counselor for course locations, times, and registration procedures. Enrollment is limited.

Introduction to Engineering Design

Open to: Freshmen, Sophomores, Juniors, Seniors

Introduction to Engineering Design is a course that teaches problem solving skills using a design development process. Students use computer software to produce, analyze, and evaluate models of project solutions. They study the design concepts of form and function, and then use state-of-the-art technology to translate conceptual design into reproducible products. Students will be engaged in team work and apply adaptive design concepts in developing sketches, featured parts & assemblies, and map property calculations will be used to evaluate parametric models. Additionally a portfolio will be demonstrated with an understanding of cost analysis, quality control, marketing, and staffing.

Prerequisites: Interest in Engineering.

Principles of Engineering

Open to: Freshmen, Sophomores, Juniors, Seniors

Principles of Engineering is a broad based course designed to help students understand the field of engineering and engineering technology and its career possibilities. Students participate in the design, development, construction, and testing of several projects. The projects are designed to develop the student's skills in planning and design and problem solving. Projects include a marble sorter, ballistics launcher, simple machine, bridge, and materials testing. Student's learning is enhanced through the use of programming, modeling, static engineering, and materials testing software. Math and science concepts and methods are introduced and reinforced. Students will also do research projects using the internet and other sources. Microsoft Word, Excel, and PowerPoint are introduced in order for the student to complete assignments and present his/her work.

Prerequisites: Interest in Engineering.

Digital Electronics

Open to: Sophomores, Juniors Seniors

Digital Electronics introduces students to applied digital logic, a key element of careers in engineering and engineering technology. This course explores the smart circuits found in watches, calculators, video games and computers. Students use industry standard computer software in testing and analyzing digital circuitry. They design circuits to solve problems, export their designs to a printer circuit auto routing program that generates printed circuit boards and use appropriate components to build their designs. Students use mathematics and science in solving world engineering problems. This course covers several topics including: analog and digital fundamentals, number systems and binary addition, logic gates and functions, Boolean algebra and circuit design, decoders, multiplexers and de-multiplexers.

Prerequisites: Completed *Principles of Engineering* or *Introduction to Engineering Design*

Civil Engineering and Architecture

Open to: Juniors, and Seniors

Civil Engineering and Architecture provides an overview of the fields of Civil Engineering and Architecture, while emphasizing the interrelationship and dependence of both fields on each other. Students use state of the art 3D software, Revit, to document projects, solve real world problems, and communicate solutions to their peers and members of the professional community through hands-on projects and activities. This course covers topics including the roles of civil engineers and architects, project planning, site planning, building design, and project documentation and presentation.

Prerequisites: Completion of two of three *Principles of Engineering*, *Introduction to Engineering Design*, and *Digital Electronics* sequence.

Computer Integrated Manufacturing

Open to: Juniors, and Seniors

Computer Integrated Manufacturing (CIM) is a course that applies principles of prototyping, robotics, and automation. It builds on the solid modeling skills developed in IED. You will use computer-controlled rapid prototyping and CNC equipment to solve problems by constructing models of their three dimensional designs. You'll also be introduced to the fundamentals of robotics and how this equipment is used in an automated manufacturing environment. You'll evaluate your design solutions using various techniques and modifications before you produce the prototype.

Prerequisites: Completion of two of three *Principles of Engineering*, *Introduction to Engineering Design*, and *Digital Electronics* sequence.

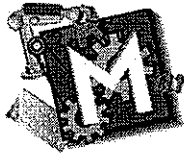
Engineering Design & Development

Open to: Juniors, and Seniors

Engineering Design and Development is a capstone course designed for students wishing to continue their pre-engineering experiences in the Project Lead the Way curriculum. Students will use mathematical analysis, scientific inquiry and engineering design, as appropriate to pose questions, seek answers, and develop an individual project. Emphasis is placed on demonstrations, discussions, and hands-on projects. Supplies needed for the course will cost approximately \$25.00.

Prerequisites: Completion of any two of the following courses: *Principals of Engineering, Introduction to Engineering Design, Digital Electronics, Civil Engineering and Architecture, Computer Integrated Manufacturing*. One must be *Principles of Engineering* or, *Introduction to Engineering Design*.

For Principals of Engineering students may be eligible to receive Rock Valley College dual or articulated credit. For dual or articulated credit requirements, students should contact their high school counselor or the HS CONNECTIONS office.



COURSE DESCRIPTIONS

The following courses are offered for juniors and seniors and can lead to certificates in **National Institute for Metalworking Skills (NIMS)** and **Certified Manufacturing Associate (CMA)**. Check with your high school counselor for course location, times, and admission procedures. The program has special requirements and requires admission to Rock Valley College. One year of high school Algebra and a 2.0 or higher grade point average on a 4.0 scale are required.

CNC Machine Setup/Operation - MET 120

Open to: Juniors &
Seniors

CNC Machine Setup/Operation studies the setup and operations of computer numerical control (CNC) machine tools. The course is designed to provide knowledge on the latest CNC machines using turning centers and machining centers in the CIM Laboratory. Lecture and laboratory projects emphasize practical problems, demonstrations, and student operations of CNC equipment. The *FAST-TRACK* curriculum will be utilized in this course.

Credit: 2 semester hours

CEANCI #: 76003

Fundamentals of CNC Programming (Manual) - MET 121

Open to: Juniors &
Seniors

Fundamentals of CNC Programming (Manual) are a study of the fundamentals of computer numerical control programming for machine tools within the manufacturing environment. Emphasis is on application, operation of a CNC program, tooling and machines. Students will write programs and verify those using machine or computer graphics. The *FAST-TRACK* curriculum will be utilized in this course.

Credit: 2 semester hours

CEANCI #: 76004

Introductory CAD and Blueprint Reading - MET 100

Open to: Juniors &
Seniors

Introductory Drafting and Blueprint Reading is designed for the student without recent high school or industrial drafting experience. The basic concepts required to create and interpret industrial drawings are presented and practiced. This course provides the fundamental information required to interpret drawings for the required dimensions and tolerances, shape descriptions, machine operations, notes, symbols, and other pertinent data.

Prerequisite: MET 120, MET 121.

Credit: 3 semester hours

Manufacturing Processes I - MET 110Open to: Juniors &
Seniors

Manufacturing Processes I provides an introduction to machining processes including milling, turning, grinding, drilling, and cutoff operations. Laboratory activities include the fundamentals of machine operations, tooling, precision measurements, process safety, care and maintenance.

Prerequisite: MET 120, MET 121.

Credit: 3 semester hours

Metrology - MET 106Open to: Juniors &
Seniors

Metrology introduces the science of measurement for engineering technicians, machinists, and technical personnel through basic measurement principles, selection, operation, and application of English and Metric measuring instruments. Lecture and lab exercises cover basic dimensional metrology, measuring instruments, gauging, high-amplification comparators, surface plates, angular instruments, sine bar, pneumatic gauging, and CMM systems. Related topics introduce data analysis, variable versus attribute, MSA, calibration systems, and modern standards for quality systems and metrology.

Prerequisite: MET 120, MET 121.

Credit: 3 semester hours

During the spring semester of their senior year, students may apply for the College's **Career Advancement Program (CAP)**. CAP is a two-year paid cooperative education partnership with area employers. CAP students receive an Associate in Applied Science at the end of two years.

CAREER COLLEGE courses are taken for College credit and can lead to a certificate.



Nursing Aide

COURSE DESCRIPTION

The following course is offered for seniors and can lead to a certificate as a **Certified Nursing Assistant (CNA)**. Check with your high school counselor for course location, times, and admission procedures. The CNA program has special requirements and requires admission to Rock Valley College. Enrollment is limited.

Nursing Aide - NAD 101

Open to: Seniors

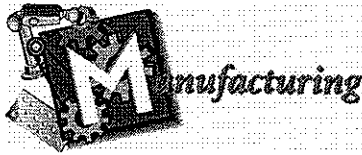
Nursing Aide provides an introduction to the principles of patient care. Emphasis is placed on communication and essential clinical skills necessary to function as an important member of the nursing team. Students are given opportunities to develop their skills in the classroom, nursing lab and clinical settings. (Approved by the Illinois Department of Public Health.)

Credit: 7 semester hours

CEANCI #: 50104

Students completing NAD 101 *Nursing Aide* with a grade of C or higher are eligible to sit for the Illinois Certification as a Nursing Assistant (CNA) exam. Cost of the exam is \$60.

CAREER COLLEGE courses are taken for College credit.



Welding Technology

COURSE DESCRIPTIONS

The following **Welding Technology** courses are offered for juniors and seniors. Check with your high school counselor for course locations, times, and registration procedures. Courses are offered at RVC and local High Schools. Enrollment is limited.

Basic Gas and Electric Welding

Open to: Juniors, Seniors

Basic Gas and Electric Welding concentrates on oxygen acetylene, SMAW, and gas metal arc welding on mild steel. An emphasis is placed on techniques and safety. Students may receive dual Kishwaukee College credit for WT 116 *Basic Gas and Electric Welding*.

Prerequisites: Interest in manufacturing welding and/or related field.

Introduction to Welding - WLD 100

Open to: Juniors, Seniors

Introduction to Welding: This course is designed for beginning welders. It covers the basic theory and provides hands-on lab practice of Shielded Metal Arc Welding (stick), Gas Metal Arc Welding (MIG), Gas Tungsten Arc Welding (TIG), Oxyfuel (Gas) welding and cutting processes. Special emphasis is placed on welding shop and process safety. This course prepares the student to enter the welding courses.

Credit 3 semester hours

Arc Welding: Flat - WLD 153

Open to: Juniors, Seniors

Arc Welding: Flat covers electric welding on plate in the flat position. Safety rules and equipment usage are emphasized. An introduction to oxygen acetylene cutting is covered.

Credit: 3 semester hours

CEANC#: 76012

Arc Welding Horizontal WLD 155

Open to: Juniors, Seniors

Arc Welding: Horizontal covers electric welding on plate in the horizontal position. Safety rules and equipment usage will be emphasized. Oxygen acetylene burning will also be covered.

Credit: 3 semester hours CEANC#: 76013

Prerequisites: WLD 153 *Arc Welding Flat***M.I.G. Welding WLD - 157**

Open to: Juniors, Seniors

M.I.G. Welding covers M.I.G. (wire) welding in all positions on plate. Safety rules and equipment will be emphasized.

Credit: 3 semester hours CEANC#: 76014

Advanced Industrial Welding

Open to: Juniors, Seniors

Advanced Industrial Welding offers training in shielded metal arc welding, gas metal arc welding, and multiple pass welding in all positions on mild steel. Emphasis is placed on efficient production welding. Students may receive dual Kishwaukee College credit for WT 218 *Advanced Industrial Welding*.

Prerequisites: *Basic Gas and Electric Welding*

For the listed course(s), students may be eligible to receive Rock Valley College dual or articulated credit. For dual or articulated credit requirements, students should contact their high school counselor or the HS CONNECTIONS office.

CAREER COLLEGE courses are taken for College credit and can lead to a certificate.