PENN COLLEGE

DUAL ENROLLMENT

Comprehensive Course Guide

This document provides information about all courses offered within Penn College Dual Enrollment. All courses are subject to availability and pending secondary teacher approval. ***New partners*** *must offer* ***only*** *program courses during their first year.*

*General education courses are identified by ** after course title.*

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ADVERTISING ART/GRAPHIC DESIGN

ART145 History of Graphic Design

Study of the history of graphic design and of the ways in which the past will help students better understand current and future design applications. Emphasis on research of different design movements, such as the Victorian and Art Nouveau Graphics, Postmodern Design, the Arts and Craft Movement, and the computer graphics revolution. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

AIR CONDITIONING AND REFRIGERATION

ACR111: Introduction to Refrigeration

Introduction to basic refrigeration systems. Topics include proper and safe use of tools, identification of materials, methods of assembling refrigeration systems, and proper handling of refrigerants. Emphasis on basic system components: evaporators, compressors, condensers, and test equipment. 5 Credits (3 Lecture – 6 Lab)
Enrollment requirement: (C) minimum overall GPA.

PLH113: Mechanical Systems Design and Operation

Study of fluid and gas conveyance within residential construction, with emphasis on the selection and application of tools and materials appropriate for code approved system installation and operation. Additional topics include the study of dynamic and static forces impacting fluid transfer, introductory plan and specification development, and basic material and cost estimating. 4 Credits (2 Lecture - 6 Lab)
Enrollment requirement: (C) minimum overall GPA.

ARCHITECTURAL TECHNOLOGY

ACH135: Architectural Computer Aided Drafting

Introduction and practical application of Computer-Aided Drafting (CAD) techniques and standards used to create two-dimensional architectural drawings. Focus on hardware and software components, operating systems, file management, CAD commands, system variables, drawing setup, creation of lines and shapes, and the editing, saving, and printing of drawings. Advanced topics include external references, layouts, paper space, attributes, dimensioning, text, and the creation of a symbols library. 3 Credits (2 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA.

AUTOMOTIVE

AMT109: Automotive Electrical Fundamentals

Study of the electron theory of electricity. Topics include Ohm's law and Kirchhoff's law; AC and DC principles; series and parallel circuits; test meters; wiring diagrams; basic solid state devices; circuit analysis; and the concepts of capacitance, inductance, and impedance. Overview of integrated circuits and on-board microcomputers. 3 Credits (2 Lecture - 3 Lab)
Corequisite(s): AMT126 (waiver available)
Enrollment requirement: (C) minimum overall GPA.

AMT112: Brake Systems

Fundamentals of brake hydraulics, including theory and operation of servo and non-servo drum brakes, disc and drum brake machining, operation of disc brakes, operation of power assist brakes, and overview of electronic anti-skid brakes. 3 Credits (2 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA.

AMT113: Steering and Suspension

Principles of operation of steering and suspension, rack and pinion steering gears, and conventional steering gears. Study includes the theory of operation of power steering gears, steering geometry, wheel alignment principles, and static and dynamic wheel balancing. 3 Credits (2 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA.

AMT126: Engine Electrical Systems

Principles of engine electrical systems, including testing equipment and procedures. Topics include wiring, connectors, and circuit protection devices; batteries and battery tests; cranking circuits, starter motors, and drives; charging circuits, alternators, and voltage regulators; ignition systems; engine computer controls and electronic fuel injection; and the oscilloscope and other special test equipment. 4 Credits (3 Lecture - 3 Lab)
Corequisite(s): AMT109 (waiver available)
Enrollment requirement: (C) minimum overall GPA.

BIOLOGY

BIO103: Human Anatomy and Physiology Survey **

Overview of human anatomy and physiology **designed for non-science majors**. Emphasis on the relationships between the structures and functions in each body system as well as the interrelationships among all body systems in the maintenance of homeostasis. Laboratory work complements and reinforces lecture materials.
4 Credits (3 Lecture - 3 Lab)
Corequisite: ENL111 (waiver available)
Enrollment requirement: (C) minimum overall GPA and (C) minimum overall Algebra I final grade.

BUILDING CONSTRUCTION

BCT103: Construction Hand and Power Tools

Survey of hand and power tools typically used to perform construction work. Emphasis on the development of skills needed to effectively perform layout, measurement, cutting, fastening, and finishing operations. Study also includes maintenance of tools and equipment, safe use of hand and power tools, and emerging tool technology.
1 Credit (0 Lecture – 3 Lab).
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

BCT109: Framing Principles

Theory and application of framing techniques in residential and light commercial construction. Emphasis on basic principles and skills used in hand and machine woodworking operations. 4 Credits (2 Lecture – 6 Lab)
*Corequisite(s): BCT103 and BCT104 (waiver available for BCT104, **not** available for BCT103)*
Enrollment requirement: (C) minimum overall GPA.

BCT234: Masonry Principles

Introduction to masonry construction materials and methods, with an emphasis on the terms, definitions, and methods of construction practices related to concrete block, brick construction, and thin masonry veneer. Topics also include the different types of mortar mixes and their strengths and uses, reinforcement of masonry walls, masonry cleaning, weather protection for masonry, and estimating supplies and materials.
5 Credits (2 Lecture - 9 Lab)
*Prerequisite(s): BCT103 and BCT104 (waiver available for BCT104, **not** available for BCT103).*
Enrollment requirement: (C) minimum overall GPA.

BUSINESS

BIM120 Social Media in Business and Society

Examination of the strategic use of social media for personal, professional, and business communication, advertising, and marketing. Course work includes using various social media tools, creating and sharing content, and collaborating on group campaigns using social media for social change. Includes analysis of current and emerging social media tools from a personal and business perspective. 3 credits (3 lecture)
Enrollment requirement: (C) minimum overall GPA.

MGT105: Introduction to Business

Introduction to a variety of business concepts and practices that impact all organizations, as well as the knowledge and skills needed to be successful in an organization. Topics include interpersonal communications, emotional intelligence, economics, accounting, and finance and investments. An integrative approach connects topics and provides context within organizational environments, relevance to current business situations, and advances across various fields of business. 3 Credits (3 Lecture)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

CHEMISTRY

CHM100: Fundamentals of Chemistry **

Basic principles of chemistry and its practice in the laboratory. Emphasis on the underlying structure of matter (atoms, ions, molecules) and how structure determines properties. Designed to teach chemistry terminology and symbols, as well as to develop analytical and critical thinking skills. Appropriate **for non-science majors** needing one term of chemistry or to satisfy a lab science requirement. Also appropriate for those who desire background before taking General Chemistry I (CHM111). No prior knowledge of chemistry is assumed, but some algebra skills are needed. 4 Credits (3 Lecture - 3 Lab)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA and (C) minimum overall Algebra I final grade.

COLLISION REPAIR (AUTO BODY)

ABC100: Introduction to Non-Structural Collision Repair

Analysis of basic principles and industry best practices, including issues of human and environmental safety. Theory/overview of removing, repairing, replacing, and adjusting outer body panels; straightening and roughing out of damaged steel panels and preparing them for body filler; and repairing aluminum panels. Study of proper replacement of corrosion protection to the repaired panels and adjustment of panels for proper fit. Introductory theory of cutting and welding of steel. 2 Credits (2 Lecture)
Corequisite(s): ABC104 (waiver not available).
Enrollment requirement: (C) minimum overall GPA.

ABC104: Introduction to Non-Structural Collision Repair Applications

Application of theory, techniques, principles, and industry best practices, including issues of human and environmental safety. Applied skills include removing, repairing, replacing, and adjusting outer body panels; straightening and roughing out damaged steel panels and preparing them for body filler; repairing aluminum panels for proper replacement of corrosion protection; and adjusting panels for proper fit.
3 Credits (0 Lecture – 9 Lab)
Corequisite(s): ABC100 (waiver not available).
Enrollment requirement: (C) minimum overall GPA.

COMPUTER-AIDED DRAFTING

CAD120: AutoCAD - Comprehensive

Comprehensive application of 2D and 3D techniques using AutoCAD® software. Topics include the generation, editing, and analysis of geometry in alignment with industry standards with an emphasis on productivity.
3 Credits (2 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA.

CAD122: 3D Parametric Modeling Using Autodesk Inventor®

Study and application of solid and surface modeling using Autodesk Inventor® parametric modeling software. Topics include the generation and editing of mechanical parts and assemblies, analysis of mass properties, rendering and animation, and the development of physical models using rapid prototyping (additive manufacturing) equipment. Also included are basic 3D-to-2D documentation techniques.
3 Credits (2 Lecture - 3 Lab)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

CCD103: Technical Drawing I

Basic principles and skills of drafting as a graphic using the parametric modeling approach. Topics include technical sketching, SolidWorks® CAD operations and procedures, shape description, geometric construction, multiview projection, sectional views, auxiliary views, revolutions, threads and fasteners, and application of dimensions and tolerancing. Other topics include detail views, part drawings, assembly drawings, manufacturing processes, surface finishing, descriptive geometry, and the use of vendor part catalogs. ANSI/ASME drawing standards and practices are emphasized. 4 Credits (3 Lecture - 3 Lab)
Corequisite(s): CCD104 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

CCD104: Detailing I

Technical drawing procedures using SolidWorks® CAD operations in compliance with the ANSI standards to develop finished drawings. Drawing assignments involve technical sketching, shape description, geometric construction, multiview projection, sectional views, auxiliary views, revolutions, threads and fasteners, application of dimensions and tolerancing, detail views, part drawings, and assembly drawings. Other topics will include manufacturing processes, surface finishing, descriptive geometry, and acquiring and using vendor part catalogs. ANSI/ASME drawing standards and practices are emphasized. 3 Credits (0 Lecture - 9 Lab)
Corequisite(s): CCD103 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

COMPUTER TECHNOLOGY

BWM150: Introduction to Web Page Development

Introductory coverage of the Internet and online Web technologies. Skills learned include how to plan, create, and maintain static web pages. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA and (C) minimum overall Algebra I final grade.

CIT160: Introduction to Programming

Introduction to problem-solving techniques, elementary programming, and the application of these techniques in developing structured programs. A current high-level language is used to illustrate the implementation phase of program development. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA and full Penn College math placement test, level 4.
ON HOLD for 2023-24; Course will return in 2024-25

CSC132: Introduction to Gaming and Simulation

Introductory topics include historical elements, genres, goals, players, story and world development, production process and roles. Study provides overall view of the game play experience and how that is implemented with various design components. Practical hands-on application includes using a simple game design environment to design and implement simple games. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

EET145: Networking I

Fundamental concepts of operation, installation, and configuration of the hardware and operating system software for computer networks. Emphasis on the hands-on, practical experiences needed to service enterprise computing systems used in industry. Network topologies, protocols, cabling systems, and server operating system software installation and service configuration are covered, with an emphasis on entry-level skills for network professionals. 4 Credits (3 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA and full Penn College math placement test, level 3.

CRIMINAL LAW

LAS250: Criminal Laws and Procedures

Study covering the various facets of criminal law. Topics include crimes against the person and property, as well as the procedures necessary from arrest through trial, sentencing, and punishment. The paralegal's role in these procedures and in the preparation of documents is emphasized. 3 Credits (3 Lecture)

Prerequisite(s): ENL111 (waiver available)
Enrollment requirement: (C) minimum overall GPA.

CULINARY ARTS/HOSPITALITY

FHD118: Sanitation

Food safety standards, practices and strategies of implementation for the prevention of foodborne illness in the hospitality industry. Hazard analysis and allergens. Completion of a national certification exam with a 75% or higher as a graduation requirement. 1 Credit (1 Lecture)
Enrollment requirement: (C) minimum overall GPA.

FHD137: Introductory Baking

Fundamental principles and procedures used to prepare a variety of bakery products and desserts. A study of ingredients and mixing methods for producing various baked goods. 3 Credits (1 Lecture - 6 Lab)
Corequisite(s): FHD118 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

DIESEL

DSM119: Fuel Systems

Basic introduction to the theory and operation of mechanical and electronic fuel injection systems as they apply to the heavy-duty diesel engine field, with a focus on operation, maintenance, troubleshooting and repair, and safety. 2 Credits (2 Lecture).
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

DSM141: Heavy Duty Brake Systems

Explanation and theory of brake systems common to heavy duty vehicles and equipment. Selected topics include air, hydraulic, and anti-lock systems with emphasis on troubleshooting and practical applications of repair and maintenance. 2 Credits (2 Lecture)
Sophomore-approved course
Corequisite(s): DSM142 or DSM155 (waiver available)
Enrollment requirement: (C) minimum overall GPA.

ELECTRICAL TECHNOLOGY

ELT116: Construction Lab I: Residential

Introduction to residential wiring, plans, specifications, and codes. Theory and lab assignments covering procedures for wiring basic lighting and receptacle circuits, installing special purpose circuits and switching circuits, and producing accurate wiring diagrams. Blueprint reading and the understanding and utilization of the National Electrical Code (NEC) are strongly emphasized in the course. 5 Credits (3 Lecture - 6 Lab)
Corequisite(s): ELT111 (waiver available)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

ELECTRONICS/ENGINEERING TECHNOLOGY

EET114: Introduction to Digital Electronics

Study of basic digital logic devices and systems. Device Symbology, Boolean logic expressions, truth tables and timing diagrams will be examined. Combinational logic circuits and their applications will be analyzed.
3 Credits (3 Lecture)
Corequisite(s): EET115 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

EET115: Digital Circuits Applications

Construction of prototype logic circuits. The measurement of static and dynamic electronic characteristics of devices and systems will be studied. 1 Credit (3 Lab)
Corequisite(s): EET114 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

EET116: Electronic Circuits and Devices I

Introduction to the basic principles of electronics and common solid state devices. Emphasis on basic electronic parameters such as current, voltage, resistance, inductance, and capacitance. Additional topics include series, parallel, and series/parallel circuits as well as discrete solid state devices, including rectifying diodes, light emitting diodes, photodiodes, zener diodes, bipolar transistors, and thyristors. 5 Credits (3 Lecture – 6 Lab)
Enrollment requirement: (C) minimum overall GPA and (C) minimum overall Algebra I final grade.

EET124: Engineering, Technology, and Society

Introduction to the basic concepts and applications of computer and engineering technologies and the effects on professional and casual users, their employers and employees, and society. Applied skills include the use of current computer technology for data/information collection and organization; visualization, analysis, and interpretation of numeric computations; and the dissemination and presentation of solutions to engineering technology problems. 3 Credits (2 Lecture – 3 Lab)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

EMERGENCY MANAGEMENT

BEM101: Introduction to Emergency Management Operations

Introduction to the theories, principles, and organized approaches to emergency management at local, state, and federal levels. Topics include the history of human vulnerability to natural, man-made, and technological hazards; the advent of emergency management professions; and an examination of current emergency response systems. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

BEM103: The History and Evolution of Emergency Management

Analysis of the history and evolution of emergency management in the United States. Topics trace events that have impacted and motivated change in approach to EM with analysis of the situations within its governing body. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

ENGLISH

ENL111: English Composition I **

Fundamental writing and research skills with an emphasis on expository writing. Emphasis on analysis, discussion, and practice of writing that explores, explains, and argues. Course work includes a significant research component. 3 Credits (3 Lecture)
Senior-only course; No mixed classrooms
Enrollment requirement: (C) minimum overall GPA and Penn College English test, level 3.
All students must be fully enrolled in this course by the first day of school.

HISTORY

HIS116: World History I **

Study of the history of humanity from its beginnings to C.E. (Common Era) 1500. Equal emphasis on the political, economic, and social development of Western and non-Western civilizations. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP World History)
Enrollment requirement: (B) minimum overall GPA.

HIS126: World History II **

Study of the history of humankind from A.D. 1500 to the present. Equal emphasis is placed on the political, economic, and social development of Western and non-Western societies. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP World History)
Enrollment requirement: (B) minimum overall GPA.

HIS136: United States Survey to 1877 **

Political, economic, and social development of the United States from colonial times through the Civil War and Reconstruction Period. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP United States History)
Enrollment requirement: (B) minimum overall GPA.

HIS146: United States Survey from 1877 to the Present **

Political, economic, and social development of the United States from 1877 up to and including the Civil Rights movement. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP United States History)
Enrollment requirement: (B) minimum overall GPA.

HORTICULTURE

HRT101: Introduction to Ornamental Horticulture

Overview of the diverse ornamental horticulture industry, including the worldwide scope and economic impact of the industry in today's marketplace. Emphasis on information access through the Internet, trade journals, trade organizations, the horticulture industry, guest speakers, and visitations to various horticultural businesses. Exploration includes products, services, and information used in the industry; production and marketing (wholesale and retail) of horticultural products and services; and traditional and nontraditional career paths within the industry. 1 Credit (1 Lecture)
Enrollment requirement: (C) minimum overall GPA.

INDUSTRIAL DESIGN

BIX110: Introduction to Industrial Design

Introduction to industrial design techniques, aesthetic concepts, and practical rendering skills. Integration of aesthetics, ergonomics, material selection, and safety principles into product design. Creative solutions to design problems using two and three dimensional renderings in sketches, clay models, and optional castings of designs.
3 Credits (2 Lecture - 3 Lab)
Enrollment requirement: (C) minimum overall GPA.

MACHINIST GENERAL & MACHINE TOOL TECHNOLOGY

MTT128: Mill Applications

Introduction to the theory and practical applications of basic metalworking. Emphasis on mill applications, industrial shop safety, material selection, job planning, bench-work, quality control, and inspection. (*Manual*) Milling machines, hand tools, drill presses, pedestal grinders, band saws, and precision-measuring equipment are used to complete required projects. 4 Credits (1 Lecture - 9 Lab)
Enrollment requirement: (C) minimum overall GPA.

MTT129: Lathe Applications

Introduction to the theory and practical applications used to safely set up and operate a metal turning engine lathe. Operations such as turning, facing, boring, grooving, drilling, turning tapers, single-point threading, and performing cut-off procedures are implemented. Three and four-jaw chucking techniques and turning between centers are used to complete required projects. 4 Credits (1 Lecture - 9 Lab)
Enrollment requirement: (C) minimum overall GPA.

MATHEMATICS

MTH123: Technical Algebra and Trigonometry I **

Study of intermediate algebra and trigonometry, designed to prepare students for coursework in their technical majors. Topics include algebraic expressions, linear equations, ratios, proportions and variation, systems of equations, geometry, right triangle trigonometry, functions, graphs. Emphasis on problem solving and technical application as well as the use of technology. Not designed to prepare students for calculus.
3 Credits (3 Lecture)
No mixed classrooms; Senior-only course
Enrollment requirement: (C) minimum overall GPA and full Penn College math test, level 3.
All students must be fully enrolled in this course by the first day of school.

MTH125: Technical Algebra and Trigonometry II **

Study of intermediate algebra and trigonometry, designed to prepare students for course work in their technical majors. Topics include algebraic fractions and equations, trigonometric functions and graphs, radicals, complex numbers, exponential and logarithmic functions and graphs, nonlinear systems, and inequalities. Emphasis on problem solving and technical application as well as the use of technology. Not designed to prepare students for calculus.
3 Credits (3 Lecture)
Prerequisite(s): MTH123 (waiver not available)
No mixed classrooms; Senior-only course
Enrollment requirement: (C) minimum overall GPA; full Penn College math test, level 3.

MEDICAL TERMINOLOGY

MTR100: Medical Terminology Survey

Introduction to the basic structures and rules of interpreting medical terminology, designed to develop the ability to read, understand, and write the medical language. 1 Credit (1 Lecture)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

MTR104: Basics of Medical Terminology

Foundation for the use of the language of medicine, with emphasis on correct pronunciation and spelling, various word parts, abbreviations and symbols, and terms pertaining to body systems. Etiology, symptomatology, pathology, and diagnostic procedures for identifying various disease processes provide an increased understanding of medically related conditions and procedures. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

PLASTICS AND POLYMER TECHNOLOGY

PPT115: The Plastics Industry

Overview of the plastics industry, including materials and processes. Topics include the many types of career opportunities in the industry, inviting individual interest-based exploration. Discussion also covers the nature of plastic product manufacturers, including size, work environment, and typical processes used.
2 Credits (2 Lecture)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

PPT118: Polymer Processing Survey – Lecture

Introduction to polymer processing techniques, including injection molding, extrusion, blow molding, rotational molding, and thermoforming. 3 Credits (3 Lecture)
Enrollment requirement: (C) minimum overall GPA.

POLITICAL SCIENCE

PSC131: American Government-National **

Federal government, its power, and organization. Functions of legislative, executive, and judicial branches. Students examine the historical development of our federal system and analyze the relationships between social forces, government, and political action. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP United States Government and Politics)
Enrollment requirement: (B) minimum overall GPA.

PSC141: State and Local Government **

State and local government institutions, their functions and responsibilities; intergovernmental relations.
3 Credits (3 Lecture)
No mixed classrooms
Enrollment requirement: (B) minimum overall GPA.

PSYCHOLOGY

PSY111: General Psychology **

Introduction to the science of human behavior and mental processes. Students examine the relation between the nervous system and behavior, learning, perception, language, personality, intelligence, and psychopathology. 3 Credits (3 Lecture)
No mixed classrooms without AP equivalent course (AP Psychology)
Enrollment requirement: (B) minimum overall GPA.

SOCIOLOGY

SOC111: Introduction to Sociology **

Introduction to the theories, principles, concepts, and major research in sociology. Study includes society's impact on human behavior and consciousness as well as the ways in which individuals and groups affect cultures and their social structures. A comparison of different cultures and subcultures provides an understanding of the relativity and universality of social values, norms, and beliefs. 3 Credits (3 Lecture)
No mixed classrooms
Enrollment requirement: (B) minimum overall GPA.

WELDING

WEL114: Shielded Metal Arc I

Introduction to the principles and practices of basic Shielded Metal Arc Welding (SMAW) using various types of mild steel electrodes in multiple positions with emphasis put on the flat and horizontal positions. The fundamentals of AC and DC current and various types of power sources will also be covered.
2 Credits (1 Lecture – 3 Lab)
Corequisite(s): WEL116 (waiver not available)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

WEL116: Shielded Metal Arc II

Practical application of the hands-on activities introduced in WEL114: Shielded Metal Arc I. Development of practical hands-on techniques with various power sources using AC and DC current in multiple positions with the emphasis on fat and horizontal. 2 Credits (0 Lecture - 6 Lab).
Corequisite(s): WEL114 (waiver not available)
Sophomore-approved course
Enrollment requirement: (C) minimum overall GPA.

WEL120: Gas Metal Arc I

Introduction to the principles and practices of basic Gas Metal Arc Welding (GMAW) applied to ferrous metals. Study includes single and multi-pass welds using a variety of electrode wire types, diameters and transfer modes. 2 Credits (1 Lecture - 3 Lab).
Corequisite(s): WEL124 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

WEL123: Gas Tungsten Arc I

Introduction to the principles and practices of basic Gas Tungsten Arc Welding (GTAW) process. Theory is applied to related equipment, electrical concepts, material properties, arc characteristic, puddle control, and appropriate application of filler materials. Welding of ferrous and non-ferrous metals in multiple positions is covered. 2 Credits (1 Lecture - 3 Lab)
Corequisite(s): WEL129 *(waiver not available)*
Enrollment requirement: (C) minimum overall GPA.

WEL124: Gas Metal Arc II

Practical application of hands-on activities introduced in WEL 120: Gas Metal Arc I. Activities include fundamentals applications on ferrous metals in multiple positions using various modes of metal transfer and wire electrodes. 2 Credits (0 Lecture - 6 Lab)
Corequisite(s): WEL120 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

WEL129: Gas Tungsten Arc II

Practical application of the hands-on activities introduced in WEL123: Gas Tungsten Arc I. Development of techniques with emphasis on the welding of ferrous and non-ferrous metals in various joint configurations. Welding will be done utilizing multiple positions. 2 Credits (0 Lecture - 6 Lab)
Corequisite(s): WEL123 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

WEL132: Flux Cored I

Introduction to the principles and practices of Flux-Cored Arc Welding (FCAW) using various types of mild steel electrodes in multiple positions. The American Welding Society's (AWS) numbering system for FCAW will be explained. Other topics include technical terms, gases, their mixtures, and the various types of filler materials. 2 Credits (1 Lecture - 3 Lab)
Corequisite(s): WEL136 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

WEL136: Flux Cored II

Practical applications of the hands-on activities introduced in WEL132: Flux Cored I. Development of techniques with the flux-cored arc welding process using semi-automatic machines in multiple positions with a variety of electrode wires, diameters and gases. 2 Credits (0 Lecture - 6 Lab)
Corequisite(s): WEL132 (waiver not available)
Enrollment requirement: (C) minimum overall GPA.

General Education Coursework

BIO103:	Human Anatomy and Physiology Survey
CHM100:	Fundamentals of Chemistry
ENL111:	English Composition I *
HIS116:	World Civilization I *
HIS126:	World Civilization II *
HIS136:	United States Survey to 1877 *
HIS146:	United States Survey from 1877 to the Present *
MTH123:	College Algebra and Trigonometry I *
MTH125:	College Algebra and Trigonometry II *
PSC131:	American Government-National *
PSC141:	State and Local Government *
PSY111:	General Psychology *
SOC111:	Introduction to Sociology *

** No mixed classrooms allowed (unless mixed with AP equivalent course for History, Psychology, and PSC131)*

Sophomore-Approved Courses

BCT103:	Construction Hand and Power Tools
CAD122:	3D Parametric Modeling Using Autodesk Inventor
CHM100:	Fundamentals of Chemistry
DSM119:	Fuel Systems
DSM141:	Heavy Duty Brake Systems
EET124:	Engineering, Technology, and Society
ELT116:	Construction Lab I: Residential
MGT105:	Introduction to Business
MTR100:	Medical Terminology Survey
PPT115:	The Plastics Industry
WEL114:	Shielded Metal Arc I
WEL116:	Shielded Metal Arc II

Senior-Only Courses

ENL111:	English Composition I*
MTH124:	Technical Algebra and Trigonometry I*
MTH125:	Technical Algebra and Trigonometry II*

** No mixed classrooms allowed*