

# TECHNOLOGY (TECN)

## TECN 111, TECHNICAL PROBLEM SOLVING 3 (5)

This course introduces students to a systematic problem-solving approach and the computer skills necessary in engineering technology. Working in a team, students will apply problem-solving methods to a real-world problem. To document and present their work, students will use word processing and spreadsheet applications. Students will also use the Internet and campus resources like the library and career services to complete course assignments. Laboratory required. (A special fee will be assessed.)

**General Education:** GEO1, GEO2, GEO3, GEO4, GEO6, GEO7

**Typically Offered:** Summer, Fall and Spring Semesters

## TECN 115, INDUSTRIAL BLUEPRINT READING 2 (3)

This course is an introduction to the skills required to read and understand industrial blueprints. The reading of blueprints is emphasized rather than the drawing of blueprints. Freehand sketching is included. Laboratory required.

**General Education:** GEO2

**Typically Offered:** Summer, Fall and Spring Semesters

## TECN 121, FLUID POWER SYSTEMS 3 (5)

Fluid Power Systems provides an overview of industrial fluid power, including hydraulics and pneumatics. Basic principles of fluid mechanics including Pascal's law, the gas laws and Bernoulli's principle are introduced. The application of basic fluid mechanic principles to real-world systems is emphasized. Common components used in fluid power circuits, schematic symbols, diagrams, circuit analysis, troubleshooting and maintenance of basic fluid power systems are highlighted using hands-on laboratory exercises. This course substantially prepares students to earn the Festo 1 Fundamentals of Fluid Power Hydraulics and Festo Level 1 Fundamentals of Fluid Power Pneumatics credential. Laboratory required. (A special fee will be assessed.) (TAG, CTAG, ITAG)

**General Education:** GEO1, GEO2, GEO4, GEO5, GEO7, GEO8

**Typically Offered:** Fall and Spring Semesters

## TECN 127, MAINTENANCE MACHINING 2 (4)

This course covers the principles and techniques of maintenance machining in an industrial production environment. Topics include: use of lathes, milling machines, drill presses, grinders, threads and thread cutting tools, power tools, commonly used hand tools, and measurement instruments for maintenance operations. Laboratory required. (A special fee will be assessed.)

**General Education:** GEO2, GEO8

## TECN 131, MANUFACTURING PROCESSES I 3 (6)

This course is an introduction to the use and understanding of commonly used machine tools, lathes, mills, drill presses, and surface grinders will be studied and used. Common fabrication processes will be studied. Laboratory required. (A special fee will be assessed.) (TAG, CTAG)

**General Education:** GEO2, GEO5, GEO8

**Course Entry Requirement(s):** Concurrent: CADD 111 or TECN 115.

**Typically Offered:** Fall and Spring Semesters

## TECN 132, MANUFACTURING PROCESSES II 3 (6)

This course covers advanced techniques of manufacturing processes using lathes, mills, surface grinders and electro-discharge machines (EDM). Fixture and tool design will be studied. Laboratory required (A special fee will be assessed.)

**General Education:** GEO2, GEO5, GEO8

**Course Entry Requirement(s):** Prerequisite: TECN 115 and TECN 131.

**Typically Offered:** Spring Semester

## TECN 133, MECHANICAL SYSTEMS 3 (5)

The Mechanical Systems course focuses on the study of industrial mechanics and working in a manufacturing environment. The course emphasizes the installation, calibration and alignment of belt drives, chain drives and gear drives. Technical calculations critical to the design, installation, and maintenance of mechanical systems are a key focus. Maintenance techniques, strategies, and applications are also emphasized. The course includes the practical application of basic precision measurement tools such as calipers, micrometers, and dial indicators, alongside techniques in lubrication, basic vibration analysis, and essential industrial safety practices. An introduction to key manufacturing operational principles, covering areas such as process efficiency, quality control systems, statistical methods, measurement techniques, and engineering design interpretation is also included. Laboratory required. (A special fee will be assessed.) (TAG, CTAG)

**General Education:** GEO1, GEO2, GEO5, GEO6, GEO7

**Course Entry Requirement(s):** Course placement policy: Grade of C or higher in MTHM 033 or satisfactory placement assessment in mathematics

**Typically Offered:** Fall and Spring Semesters

## TECN 211, FLUID POWER CONTROL SYSTEMS 2 (3)

This course covers the design, construction, and operation of electric and electronic controls in hydraulic and pneumatic systems. Topics include pressure switches, electrical counters, sequence systems, time delay relays, sensors, actuators, relays, and optical proximity sensors. Practical labs focus on industrial applications, providing hands-on experience with control elements and troubleshooting. Students will learn to design, implement, and maintain efficient fluid power control systems for reliable industrial operations. This course substantially prepares students to earn the National Coalition of Certification Centers (NC3) Festo Advanced Fluid Power Certificate (NC3 Festo Fundamentals of Fluid Power Certification is required to sit for the NC3 Festo Advanced Fluid Power Certificate) Laboratory required. (A special fee will be assessed.)

**General Education:** GEO1, GEO2, GEO5, GEO6

**Course Entry Requirement(s):** Prerequisite: ELCT 111 and TECN 121.

**Typically Offered:** Spring Semester

## TECN 220, INDUSTRIAL PIPING & TUBING 3 (4)

This course is an introduction to the concepts and principles of industrial piping, pipefitting, and tubing installation, materials, routing and layout specifications. Also covered are: simple pipe calculations, selection of materials, appropriate tools, cutting, threading, fittings, bending and offsets. Laboratory required. (A special fee will be assessed.)

**General Education:** GEO2, GEO5, GEO6

**Course Entry Requirement(s):** Prerequisite: TECN 115

**Typically Offered:** Spring Semester

## TECN 245, GEOMETRIC DIMENSIONING AND TOLERANCING 2 (2)

This course is an introduction to the ASME Y14.5 - 2009 Geometric Dimensioning and Tolerancing (GD&T) standard. General tolerancing methods will be reviewed. Geometric characteristic symbols and terms, and datums will be defined. Material condition modifiers will be identified and discussed. The geometric tolerances of form, orientation, profile, runout and location will be studied.

**General Education:** GEO2

**Course Entry Requirement(s):** Prerequisite: TECN 115

**Typically Offered:** Fall and Spring Semesters

**TECN 287, WORK BASED LEARNING I - TECN 1-3 (1)**

This course provides supervised work experience building on experience in Work-Based Learning with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating classroom learning with work experience. Students will be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Activities are coordinated and evaluated by college personnel.

**General Education:** GE01, GE02, GE06, GE08

**Course Entry Requirement(s):** Prerequisite: Minimum 2.0 GPA overall and division approval

**Typically Offered:** Offer as required

**TECN 288, WORK BASED LEARNING II - TECN 1-3 (1)**

Building on experiences from Work Based Learning I, this course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.

**General Education:** GE01, GE02, GE06, GE08

**Course Entry Requirement(s):** Prerequisite: TECN 287

**Typically Offered:** Offer as required

**TECN 289, WORK BASED LEARNING III - TECN 1-3 (1)**

Building on experiences from Work Based Learning II, this course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.

**General Education:** GE01, GE02, GE06, GE08

**Course Entry Requirement(s):** Prerequisite: TECN 288

**Typically Offered:** Offer as required

**TECN 299, INDIVIDUALIZED STUDIES IN TECHNOLOGY 1-3 (1)**

An in-depth study of areas in technology presented by discussion and/or individual research and reading. Topics will vary. Repeatable up to six (6) times for a total of six (6) credit hours.

**Course Entry Requirement(s):** Prerequisite: Second-year standing and division approval

**Typically Offered:** Offer as required

**TECN 345, GEOMETRIC DIMENSIONING AND TOLERANCING WITH ADVANCED PROJECTS 2 (2)**

This course is an introduction to the ASME Y14.5 - 2009 Geometric Dimensioning and Tolerancing (GD&T) standard. General tolerancing methods will be reviewed. Geometric characteristic symbols and terms, and datums will be defined. Material condition modifiers will be identified and discussed. The geometric tolerances of form, orientation, profile, runout and location will be studied.

**General Education:** GE02

**Course Entry Requirement(s):** Prerequisite: TECN 115 and admission into a bachelor degree program or division approval

**Typically Offered:** Fall and Spring Semesters

**TECN 422, TECHNICAL PROJECT MANAGEMENT 4 (6)**

This course teaches the application of fundamental project management tools and processes in technical projects, with incorporation of key technical documentation and change notices commonly used in manufacturing or engineering projects. By the end of this course, the student will be able to develop a Project Management plan for a given project as well as be able to incorporate a change notice. This course substantially prepares students to sit for the Project Management Institute Certified Associate in Project Management (PMI CAPM) Exam.

**General Education:** GE01, GE02, GE03, GE08

**Course Entry Requirement(s):** Prerequisite: TECN 111 or MEMS 124; and admission into a bachelor degree program or division approval

**Typically Offered:** Fall Semester