

# ENGINEERING TECHNOLOGY (ENGT)

## ENGT 102 Manufacturing Processes 3 cr.

This course discusses materials and processes that are used in manufacturing. The course introduces the properties of materials for manufactured goods that include ferrous and nonferrous metals and alloys, ceramics, and composites. The casting, powder metallurgy, metal and nonmetal fabrication processes are also studied. In this course, students must apply knowledge learned in lectures in a lab setting. Code 3 course fee.

Corequisite(s): ENGR 191

## ENGT 114 Principles of Quality Control In Manufacturing 3 cr.

This Quality Assurance (QA) course emphasizes the process used to ensure that products and systems are meeting the planned requirements. Students will understand the systematic approach to measurement, standard comparison, and monitoring that lead to error prevention. Code 3 course fee.

## ENGT 127 Introduction to Robotics 4 cr.

This course will introduce students to the field of robotics. A variety of multidisciplinary topics necessary to understand the fundamentals of designing, building, and programming robots are covered. Topics are presented in lecture format then applied in a laboratory setting. Students will be required to gradually complete the design and construction of a robot using robotics kits and auxiliary technology following requirements of an overall robotics competition style set of demonstrations. Students will also be introduced to general industrial robotics concepts. Code 4 course fee.

## ENGT 140 Introduction to Computer Numeric Controlled (CNC) Machines 3 cr.

This course emphasizes the understanding and operation of Computer Numeric Control (CNC) machines. The laboratory work involves the use of computer-integrated manufacturing (CIM) which includes the use of computer numerical control (CNC) machines. Code 3 course fee.

## ENGT 144 DC/AC Electric Circuits 4 cr.

This is an introductory course to DC and AC electrical circuit analysis. Basic parameters such as current, voltage, and resistance are defined and applied. Ohm's Law and other important laws are studied and applied to series and parallel circuits. Lab exercises will emphasize and further help students understanding of theory. Code 4 course fee.

Prerequisite(s): MATH 161 or higher

Corequisite(s): MATH 161

## ENGT 150 Automated Control Systems 4 cr.

The Automated Control Systems course prepares students for a future in modern manufacturing control systems with topics related to the design, application, and maintenance of industrial process controls, robotics, and automated manufacturing systems. Emphasis is placed on developing knowledge and skills in electrical and electronic circuits, AC and DC motors, robotics, motion control, instrumentation, data acquisition, programmable logic and computer-based controllers. In addition, the course places emphasis on safety, teamwork, communication skills, and efficient work practices. Code 3 course fee.

Prerequisite(s): ELET 144

## ENGT 151 Applied Mechanics 3 cr.

Introduction to the basic principles of engineering mechanics including fundamentals of force systems and resultants, moments and couples, equilibrium, trusses and frames, centroids and moments of inertia. Code 3 course fee.

## ENGT 191 Design - Technical Projects and Experience 1 cr.

This course is an experiential learning course that focuses on the design phase of the engineering design process. Students will be introduced to the sub-phases of design: concept creation, requirements definition and technical design. All phases will be exercised by students doing a semester long design project. It is recommended that students take this course in conjunction with "Tools for Technical Communications." Code 4 course fee.

## ENGT 192 Build - Technical Projects and Experience 1 cr.

This course is an experiential learning course that focuses on the build phase of the engineering design process. Students will be able to execute the creation of a test-ready product or prototype in one of the following technology areas: construction, electrical, mechanical, industrial process or software by students doing a semester long build project. Code 4 course fee.

## ENGT 193 Test - Technical Projects and Experience 1 cr.

This course is an experiential learning course that focuses on the test phase of the engineering design process. Students will be introduced to testing methodologies for one of the following technology areas that aligns with their project: construction, electrical, mechanical, industrial process or software. Testing methodologies will be exercised by students doing a semester long testing project. It is recommended that you take this course in conjunction with "Principles of Quality Control & Quality Management" or "Quality Management & Applied Statistics." Code 4 course fee.

## ENGT 195 Tools for Technical Communications 3 cr.

This course is an overview of tools and the contextual usage of technical communications. Students will utilize software tools for information in the form of written text, technical drawings, graphics, video, data and analytics. In addition to learning the fundamentals of these tools, students will exercise them in the context of formal and informal professional scenarios. Code 4 course fee.

## ENGT 196 Project Management 3 cr.

This course will familiarize a student with the Project Management Body of Knowledge (PMBOK), a set of standard terminology and guidelines for project management. The PMBOK is developed and maintained by the Project Management Institute (PMI) which oversees industry standard project manager certification known as Project Management Professional (PMP). This course will enable a student to move towards their PMP certification that requires formal project management training, such as this course, passing the PMP examination, time spent leading and directing projects and project management experience. Code 4 course fee.