

# ELECTRICAL/ELECTRONICS TECH (EET)

## EET 102 - Intro to Engineering Tech

**Credit Hours: 2, Contact Hours: 2**

Division: Technical

This course is designed to give students an overview of Engineering Technology and the career options this profession provides. This course highlights the technical specializations within the Engineering Technology degree at NMC. Course topics also include an introduction to the makerspace, career development, teamwork, and soft skills. Communications - Direct. Group 2 course. Communications - Direct. Recommended Prerequisite(s): Placement into MTH 100 and ENG 99/108 or higher

## EET 103 - Electrical Studies I

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

Explore the fundamentals of electricity and electronics by developing introductory analysis, construction and troubleshooting techniques for DC and AC circuits. Safe electrical practices will be emphasized throughout the course as the student constructs circuits from schematics and diagrams using proper wiring and soldering techniques. Electrical measurements will be performed using multimeters and oscilloscopes. Group 2 course. Quantitative Reasoning.

## EET 161 - Fundamentals of Light & Lasers

**Credit Hours: 4, Contact Hours: 6**

Division: Technical

This course introduces the elements of a laser, operation of a helium-neon gas laser, laser physics, optical-cavities, properties of laser light and a survey of laser systems. Safety procedures concerning lasers and related equipment are presented in this course. Group 2 course. Quantitative Reasoning.

Required Prerequisite(s): MTH 100 or higher

## EET 180 - Biomedical Equipment I

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course introduces the learner to the field of the biomedical equipment technology and the role of the technician. Safety, patient care, ethics, regulatory requirements, healthcare equipment technology and function will be emphasized. Proper procedures and protocols for the calibration, test and troubleshooting of medical equipment will be developed. Common diagnostic equipment will be used for signal analysis. The course will begin the preparation for the CBET certification exam. Group 2 course.

Required Prerequisite(s): BIO 106, EET 204, HAH 101

## EET 190 - Biomedical Internship

**Credit Hours: 1, Contact Hours: 1**

Division: Technical

The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Biomedical Equipment. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 5-10 hours per week in this, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in three seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Required Prerequisite(s): EET 180

## EET 204 - Electrical Studies II

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

A systems level approach to electronics and electrical devices will be used to analyze semiconductor applications including integrated circuits, power supplies, transistors, amplifiers, and digital logic families. Circuits will be bench tested, and integrated with others to meet system requirements. Design modifications, circuit improvements, component protection and application to other areas of engineering technology will be emphasized as designs are developed into working prototypes. Group 2 course. Quantitative Reasoning.

Required Prerequisite(s): EET 103

## EET 212 - Elements of Photonics

**Credit Hours: 4, Contact Hours: 5**

Division: Technical

Elements of Photonics builds upon and applies principles presented in Fundamentals of Light and Lasers. The course includes modules on operational characteristics of lasers, specific laser types, optical detectors and human vision, principles of optical fiber communications, photonics devices for imaging, storage and display, and laser welding and surface treatment. Group 2 course. Quantitative Reasoning.

Required Prerequisite(s): EET 161

## EET 221 - Industrial Controls

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course studies control circuits, electrical schematics and line diagrams. Motor circuits utilizing motor starters, contactors, timers and counters are used to demonstrate control circuitry. Industrial control devices are examined, including solid-state control devices, electro-mechanical relays, proximity sensors, photoelectric sensing devices and programmable logic controllers. Group 2 course.

Required Prerequisite(s): EET 103 or ELE 105 or MNG 234 or MNG 235

## EET 232 - Programmable Logic Controllers

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course studies programmable logic controllers (PLCs). Basic models and complete applications are applied to control inputs and outputs of PLCs. Ladder logic and device wiring techniques are studied, along with advanced program instructions such as counters, timers, sequencers and integer moves. Input/output devices are used to examine PLC program logic during the control process. Group 2 course.

Required Prerequisite(s): EET 221

**EET 233 - PLC Applications I****Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course is a study of the integration of program styles and components used in industry. Program structures and instructions will be used in lab projects to simulate how PLCs can be used to create a variety of useful functions. A mixture of textbook and component manuals will be used to learn the necessary information to complete these functions. Group 2 course.

Required Prerequisite(s): EET 232 or ELE 142

**EET 234 - PLC Applications II****Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course is a continuation of the study of the integration of program styles and components used in industry. Program structure and project development will be studied. Installation of different types of components integrated with PLCs will also be studied. Group 2 course.

Required Prerequisite(s): EET 233 or ELE 146

**EET 260 - System Engineering in Practice****Credit Hours: 3, Contact Hours: 4**

Division: Technical

This class introduces students to the practice of system design and development. Students apply specific methodologies for problem-based learning and project management. Technical content from prior courses is applied to address challenges and create solutions. Student teams create prototypes and communicate results with classroom activities supporting teamwork, project planning, requirements analysis, design, development, testing, demonstration, and reporting. Group 2 course.

Required Prerequisite(s): EET 102, EET 103, RAM 155

Recommended Prerequisite(s): AVF 141, RAM 205 or WSI 200

**EET 281 - Biomedical Equipment II****Credit Hours: 3, Contact Hours: 4**

Division: Technical

This course continues the study of biomedical equipment technology and the role of the technician. Healthcare problem solving techniques will be developed through the analysis, testing and troubleshooting of medical equipment. Information technology needs and requirements will be reviewed as they pertain to the healthcare environment as well as anatomy and physiology specific to the field. Students will continue preparing for the CBET certification exam. Group 2 course. Critical Thinking - Direct.

Required Prerequisite(s): EET 180

**EET 290 - Engineering Tech Internship****Credit Hours: 3, Contact Hours: 3**

Division: Technical

The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.

Required Prerequisite(s): 30 credits of program specific courses with a GPA of 2.0 or higher.

**EET 292 - Technical Career Development****Credit Hours: 1, Contact Hours: 1**

Division: Technical

This course provides the career tools necessary for the student to reach their full professional potential. The student will develop essential career success skills through class activities and direct practice in the technical community. Hands-on assignments in each session will allow the student to research employers; learn about application requirements, practice meeting professionals in their field, and practice successful interviewing techniques. Group 2 course.

Required Prerequisite(s): 30 Technical division program credits