EGN - GENERAL ENGINEERING (EGN)

EGN 1001 Engineering Workshop (0-3-1)
Engineering workshop gives the student the opportunity to learn basic hands-on skills, engineering measurements and underpinning knowledge in safe working practices. The course also introduces the fabrication of metalwork projects.

EGN 1133 Design Thinking in Technology (1-4-3)
Covers the design thinking methodology to identify and address engineering problems. Includes solid modeling, rapid prototyping, understanding end users, their unarticulated needs, and creating alternative solutions. Focus on creativity, identify potential solutions, and innovation of new products and work processes. Students will apply design methodologies and innovation tools in an engineering technology problem, build and test it to gain the spirit and initiative of the course.

EGN 2101 Computer Aided Drafting (0-2-1)
Introduce principles of computer-aided drafting for two- and three-dimensional multi-view and sectional representations of geometric shapes.
Prerequisites: EGN 1133

EGN 2233 Engineering Mechanics Fundamentals (3-1-3)
This course is designed to enable students to use the fundamentals of engineering mechanics to analyze and solve problems in a logical and simple way.
Prerequisites: PHY 1103

EGN 2712 Applied Programing for Engineers (0-4-2)
Use algorithms, pseudocode, and flowcharts in the design process of computer programs. High level programming languages consist of primitive data types, operators, flow control, looping structures, error handling, functions, and array data structures, which may be used in the implementation of properly documented programs for engineering technology solutions.
Prerequisites: ICT 2013

EGN 2806 Work Placement I (0-30-6)
The work placement course provides an opportunity to assess, in the workplace, the effectiveness of the student's training. It permits the students to put into practice the skills and knowledge they have learned during their studies, where students are placed to experience the work environment in a field related to their major.
Prerequisites: WPR 0100, (ELE 2314 or IET 2003 or CVE 2603 or MCE 3613 or CHE 2903 or AET 2902 or LGE 2003)

EGN 3012 Project Management (2-1-2)
Introduces the necessary tools and information to manage engineering projects and resources. Covers a range of principles and practices in initiating, planning, staffing, coordinating and completing a project within the triple constraint of schedule, budget, and performance. Examines topics such as work breakdown structure, estimating, project networks, risk management, resource allocation, cost planning and makes use of available industry tools, such as Microsoft Project, to assist in managing real life projects.

EGN 3212 Economics for Engineering (2-1-2)
Covers basics of economic analysis for quantifying engineering business decisions. Includes time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and tax implications. Advanced analysis of certainty; uncertainty; risk analysis; public sector analysis and break-even concepts related to engineering projects. Demonstrate competency in key economic analysis using hands-on tools like case studies.

EGN 3333 Health Safety and Environment (3-1-3)
Understand and describe common industrial procedures for employee health, safety and environment. The course covers the identification and control of hazards, occupational health, fire protection and prevention, safety management and ethics, safety regulations, safety inspection, accident investigation, personal protective equipment, and safety report documentation. Discuss environment protection, accident prevention, effective committee operations, accident investigation, and safety training.
Prerequisites: EGN 1133

EGN 3806 Work Placement II (0-30-6)
The work placement course provides an opportunity to assess, in the workplace, the effectiveness of the student's training. It permits the students to put into practice the skills and knowledge they have learned during their studies, where students are placed to experience the work environment in a field related to their major.
Prerequisites: WPR 0100
Corequisites: EGN 2806

EGN 3812 Work Placement (0-30-12)
The work placement course provides an opportunity to assess, in the workplace, the effectiveness of the student's training. It permits the students to put into practice the skills and knowledge they have learned during their studies, where students are placed to experience the work environment in a field related to their major for a duration of 16 weeks with a minimum of 480 contact hours.
Prerequisites: EGN 2806

EGN 4333 Renewable Energy Systems (2-2-3)
Covers renewable energy sources and systems for conversion of various forms of energy into electrical power are essential for sustainable systems. Includes common energy sources such as wind, solar, nuclear, fuel cell, hydro, biomass and geothermal are described by operational principles, block diagrams and construction. Introduces factors affecting generation, efficiency and integration of power sources to the grid from wind and solar-based energy systems.
Prerequisites: PHY 1203

EGN 4863 Virtual, Augmented and Mixed Reality (2-2-3)
This course is designed to give basic skills and knowledge about current and future technologies of Virtual, Augmented and Mixed Reality and its applications to solve Engineering and Business Problems. This hands-on course will develop students' skills to develop their own applications of VR, AR and MR using different tools to meet current and future market challenges in the field of engineering. They will do hand one labs, projects and exams on current industry standard tools, e.g. Unity, Web GL, Blender 3D and Unreal Engine.
Prerequisites: EGN 2712

EGN 4873 Data Analytics (2-2-3)
The course provides a comprehensive introduction to Data Analytics using modern computing systems, with equal attention to fundamentals and practical aspects. Topics include sources of data, data formats and transformation, the use of spreadsheets and databases and their programming, statistical analysis, pattern recognition, data mining, big data, and methods for data presentation and visualisation.
Prerequisites: EGN 2712, MTH 1113

EGN 4883 Introduction to Artificial intelligence (2-2-3)
This course aims to introduce students to the building blocks and components of Artificial Intelligence (AI). The course covers AI concepts including AI algorithms, machine learning, and neural networks. A general review of underlying mathematical and programming skills will be presented. Neural networks and machine learning topics are presented with applications in Engineering. Students will also look at how artificial intelligence is now being used to address technical problems. The course includes selected laboratory experiments covering the main concepts of the subject.
Prerequisites: EGN 2712, MTH 1113, MTH 2103