Specialist Diploma in Civil Engineering

OVERVIEW

Civil Engineering has been developed to focus on apply technical, theory, concepts, strategies, and skills related to the Civil Engineering. Students will understand the important of professional knowledge of civil engineering in the engineering world. The course also preparing individuals for a range of careers in the engineering and construction sectors in Singapore and Globally.

PROGRAMME OBJECTIVES:

The Specialist Diploma in Civil Engineering aims to provide students with the necessary technical and professional knowledge and skills to pursue a career in civil engineering or related fields. It also aims to develop students who can think independently, appreciate technical, managerial and social constraints in their working environment and make professional judgements. The course is ideal for anyone at the beginning of their career or looking to improve their qualifications or career prospects in Engineering and its related industries.

DURATION COMPONENTS:

Classroom Training Hours: 30 - 42 Hours Per Module

ASSESSMENT METHODS:

Combination of Coursework and Examination

PROGRAMME OUTCOMES:

Upon completion of the course, the students will be competent to:

- develop an understanding of the fundamental of civil engineering
- equip students with an analytical problem-solving mindset in civil engineering
- develop a good analytical ability in civil engineering
- demonstrate interpersonal, self-study, research and presentation skills through the course
- have adequate preparation for their careers or further studies in a related area

AWARDING BODIES:

Global School of Technology and Management

NUMBER OF MODULE:

8

TOTAL CONTACT HOURS:

288 hours

MODULE SYNOPSIS:

ENG401 Engineering Principles

This module encourages students to explore a broad range of engineering topics, including parameters within mechanical engineering systems, characteristics and properties of engineering materials, A.C./ D.C. circuit theorems, network analysis and electromagnetic principles properties.

ENG402 Mathematical Modeling and Applications

Mathematical Modeling is becoming an increasingly important subject as computers expand our ability to translate mathematical equations and formulations into concrete conclusions concerning realistic engineering problems. Engineering students must understand the fundamental mathematical knowledge and techniques needed to enable them to use and apply mathematical techniques for the evaluation, analysis, modelling and solution of realistic engineering problems. Application of these data sets has to include their interpretation both to and from the mathematical language.

ENG403 Engineering Design and Practice

This module's learning objective is to provide the practical and professional skills to develop practical professional engineering skills required for conceiving, designing, implementing, and operating engineering solutions. The project work involves developing, managing and achieving the objectives of an engineering project and applying professional and technical skills and knowledge in a real case scenario. The project encourages a holistic approach to managing the technical and managerial aspects of an engineering project, using the multiple technologies and topics that the students have learned.

ENG404 Civil Engineering and Sustainable Built Environment

The integration of sustainability in civil engineering practice is desirable to solve some of the world's biggest challenges: climate change mitigation; improved infrastructure for the safe storage, treatment, and transport of drinking water; renewable energy innovation and smart grid management; building the resilient urban systems that will support massive urbanization in the century ahead. It is crucial to develop solutions in enhancing environmental capabilities and producing sustainable designs. The emergence and development of more sustainability aware engineers would enhance their services to humankind and the rest of nature.

This module aims to equip students with a wider horizon of sustainability, current and emerging environmental challenges concerning civil engineers. It helps students understand the construction industry's environmental issues and discuss the relationship between building, urban planning, geotechnical, and water resources concepts from a sustainability perspective.

ENG405 Foundation Engineering

It is necessary for Civil Engineering students to have the knowledge and learn the principles of practices for the investigation, design, contracting and construction of shallow and deep foundations, including analysis to the evaluation of soils, foundation design and remediation of soils.

This module aims to introduce students to the fundamentals and basic techniques used in Foundation Engineering. Specifically, it will provide students with a basic understanding of geotechnical principles in the design and analysis of shallow foundations, deep foundations and earth retaining structures.

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ENG406 Traffic and Highway Engineering

The module focuses on giving students insight into all facets of traffic and highway engineering.

The topics will cover the Transportation Economics; The Land-Use Transportation Relationship; Vehicle and Human Characteristics; Traffic Flow Theory; Geometric Design of Roads; Highway Capacity Analysis; Intersection Traffic Control Analysis; Intersection Capacity and Level-of-Service Analysis; Public Transportation and Local Area Traffic Management.

ENG407 Fluid Mechanics

The module aims to provide students with the knowledge and understanding of fluid mechanics to carry our professional engineering activities in the field of fluid. Students will learn the know how on develop an appreciation for the properties of Newtonian fluids**,** analytical solutions to a variety of simplified problems, the dynamics of fluid flows and the governing non-dimensional parameters and apply concepts of mass, momentum and energy conservation to flows

ENG408 Integrated Engineering Project

This module's learning objective is to develop practical professional engineering skills required for conceiving, designing, implementing, and operating engineering solutions. The project work involves developing, managing and achieving the objectives of an engineering project and applying professional and technical skills and knowledge in a real case scenario.

The project encourages a holistic approach to managing the technical and managerial aspects of an engineering project, using the multiple technologies and topics that the students have learned.