

## **Bachelor of Engineering (Hons) Civil Engineering** **KP/JPS(KA6168)07/10**

Civil engineering is the scientific study of the planning and construction of buildings, industrial infrastructures, roads and bridges. This programme concentrates on the practical application of technical knowledge (i.e. in mathematics and physical sciences, and their applications to all areas of civil engineering) to real-life and societal problems. Fieldwork is mainly related to planning, designing, constructing and maintaining public infrastructure or systems. It aims to produce graduates who demonstrate capabilities to acquire and apply knowledge of science and engineering fundamentals, possess in-depth technical competence in the civil engineering discipline to undertake problem identification, formulation and solution, and possess the ability to utilise a systems approach to design and evaluate operational performance.

### **Programme Objectives**

The Programme Objectives describe the career and professional accomplishments that the Civil Engineering programme would prepares the graduates to achieve in a few years after their graduation. Programme of Civil Engineering should be able to:

1. Provide students with a solid foundation of technical knowledge ranging from fundamental principles to state-of-the-art technologies and the skills and abilities they will need in engineering practice and higher educational level.
2. Ensure students acquire good communication and leadership skills.
3. Foster an intellectually stimulating environment for professional development.

### **Programme Outcomes**

Upon completing this programme, the student is expected to attain the following:

- i. Ability to acquire and apply knowledge of mathematics, science and engineering fundamentals in civil engineering system;
- ii. Acquired comprehensive technical competence in civil engineering to design and conduct experiments, as well as to analyse and interpret data;
- iii. Ability to identify, formulate, and solve civil engineering problems;
- iv. Ability to use systems approach to civil engineering design and evaluate operational performance;
- v. Ability to apply the civil engineering principles of design for sustainable development;
- vi. Understanding of professional and ethical responsibilities and commitment to them;
- vii. Ability to communicate effectively in written, oral, and visual form, with engineers and the community at large;
- viii. Ability to function effectively as an individual and in a group with the capacity to be leader or manager;
- ix. Understanding of the social, cultural, global and environmental responsibilities of a professional engineer; and
- x. Recognising the need to undertake life-long learning, and possessing /acquiring the capacity to do so.

## **Careers**

Graduates are able to find employment as planners, construction managers, administrators, designers, investigation & research engineers and consultants

## **Subjects**

### **Year 1**

English for Engineering  
Statics  
Survey I  
Fluid Mechanics I  
Mathematics for Engineering I & II  
Dynamics  
Soil Mechanics  
Circuit Theory  
Structural Analysis I  
Structural Analysis II

### **Year 2**

Hydrology  
Solid Mechanics I  
Geotechnical Engineering  
Numerical Methods and Statistics  
Computer Aided Design and Programming  
Fluid Mechanics II  
Engineering Thermodynamics I  
Civil Construction Materials  
Reinforced Concrete Design I  
Reinforced Concrete Design II  
Environmental Science and Engineering  
Structural Steel Design  
Basic Economics, Accounting and Management

### **Year 3**

Construction Project Management  
Highway and Transportation  
Water Supply and Wastewater Treatment  
Hydraulic Systems and Design  
Engineering Analysis  
Law for Engineers  
Industrial Training

### **Year 4**

Integrated Design Project  
Engineer in Society  
Project

**Elective Engineering Subjects\* (Choose 4 subjects)**

Water Resource System  
Environmental Chemistry  
Concrete Structure Analysis and Design  
Concrete Technology  
Traffic Engineering and Transportation System Analysis  
Geoenvironmental Engineering  
Survey II  
Advanced Structural Steel Design II

**Elective Engineering Related Subjects\* (Choose 1 subject)**

Entrepreneurship  
Engineering Economics

\*Subject to change/availability

**MQA Subjects**

Bahasa Kebangsaan/Foreign Language  
Pengajian Malaysia  
Pendidikan Moral/Pengajian Islam

**University Subjects**

Co-Curriculum  
Sun Zi's Art of War and Business Strategies