

## **ENGINEERING WITH BUSINESS MANAGEMENT PROGRAMME**

Students who are interested in both engineering and business studies can have the best of both worlds when they enroll in the Engineering with Business Management Programme (EBM).

Traditionally, students who wish to pursue an engineering diploma have to choose a specific engineering discipline during the application process. However, with EBM, students can choose their preferred engineering discipline towards the end of their first semester in Year 1. This allows them to gain a better understanding of the various disciplines before making a more informed decision.

Besides enjoying this flexibility, EBM students also take business management modules delivered by the School of Business & Accountancy. The broader curriculum is geared towards training students to be new age engineers with a vision for business leadership.

Under this EBM programme, students will have a choice of nine diplomas to graduate in:

- Aerospace Electronics
- Aerospace Technology
- Audio-visual Technology
- Automation & Mechatronic Systems
- Biomedical Engineering
- Electrical Engineering
- Electronic & Computer Engineering
- Marine & Offshore Technology
- Mechanical Engineering

All first-year students taking the above engineering courses, including those who opt for EBM, will share a common curriculum in the first semester. Towards the end of the first semester, EBM freshmen will choose their preferred engineering courses. Business modules start in level 2.

## **COURSE MODULES**

### **LEVEL 1.1**

#### **Career & Professional Preparation 1**

This first-year module helps to give students a foundational introduction to their three-year diploma course curriculum and how it prepares them for industry. It will help them to embark on their three-year course with the end in mind, through guided reflection of their personal characteristics, and producing an overall game plan for their future education and career goals. The module aims to deepen students' commitment to the sector that the course prepares them for.

#### **Computer Programming**

This practice-oriented module equips students with the basic knowledge and skills in computer programming using C language. The main topics include basic computing concepts, fundamentals of C, branching, loops, and C functions. Upon completion of the module, students will be able to explain and write C programs for simple engineering applications.

#### **Electrical Technology**

This module builds the necessary foundation for electrical circuit analysis covering electrical theorems and techniques for analysing and solving direct and alternating current circuit problems. Laboratory assignments include basic electrical measurement skills and concepts learnt in lectures and tutorials.

### **Engineering Mathematics 1s**

This module provides students with mathematical skills for solving basic engineering problems. Topics are organised to keep pace with applications in the engineering modules. They include algebra, trigonometry, logarithms, matrices and complex numbers. A Computer Algebra System will be used where appropriate.

### **Engineering Mechanics**

This module introduces students to the study of external forces in two dimensions and their effect on particles and rigid bodies that are at rest. Students learn the skills to analyse the forces acting on the bodies by drawing free-body diagrams and applying the conditions of equilibrium. Topics include forces and resultants, moments and couples, equilibrium, and the concepts of plane friction. This module also aims to equip students with the skills to analyse problems of rigid bodies in motion. Only linear and rotational motion in two dimensions will be covered. Topics include Kinematics of linear and rotational motion, and Kinetics of linear and rotational motion.

### **Innovation Toolkit ^**

Innovation Toolkit is designed to help you develop the innovative mindset and build up your confidence as a creative thinker. You will learn how to spot opportunities from problems through a user-centric approach - observing and interacting with different stakeholders. You will also be challenged to generate groundbreaking ideas to add value to the lives of users.

### **Sports & Wellness ^**

This module helps you to learn a sport as a recreational activity to keep you fit and healthy. Team building and collaboration skills are developed as you network with other students. There are a total of 19 sports electives to choose from: Aerobics, Badminton, Basketball, Cheerleading, Dance Movement, Dancesport, Flag Football, Hip Hop, Life Saving / Swimming, Netball, Orienteering, Street Soccer, Soccer, Softball, Tennis, Touch Rugby, Volleyball, Wellness Programme and Yoga. Outstanding students are awarded a Pass with Merit.

## **LEVEL 1.2**

**Please refer to the core modules under the engineering diploma you major in.**

## **LEVEL 2**

**Please refer to the core modules under the engineering diploma you major in.**

### **Minor in Business Management modules**

#### **Fundamentals of Financial Management**

This module covers basic accounting and financial concepts and principles to enable students to understand and interpret financial statements and reports. Students will also have an understanding of costing concepts and the financial techniques used in making financial decisions and evaluating capital investment projects.

#### **Marketing Fundamentals**

The module introduces concepts and principles of marketing of goods and services to enable students to better understand and evaluate the marketing system in which products and services are planned, priced, promoted and distributed. Apart from the four Ps in marketing, topics covered also include segmentation, targeting and positioning, product mix, service marketing, channel decisions and branding.

Note: Business & the Economy and Effective People Management are IS modules.

## **LEVEL 3**

**Please refer to the core modules under the engineering diploma you major in.**

## **Minor in Business Management modules**

### **Starting & Managing an Enterprise**

Through this module, students generate business ideas and propose how these ideas can be developed into a business plan incorporating operational and financial requirements and marketing strategies for a new enterprise. In addition, students will learn how the principles of management can be applied to organise and develop the enterprise. Topics covered include entrepreneurial concepts and issues, business entry and exit strategies, types of business ownership, sources of business financing, venture launch and management principles.

## **Business Management Elective (Choose one)**

### **Managing Service Operations**

This module introduces the operations in service organisations and the use of techniques for designing, planning, organising and controlling resources for the delivery of goods and services to meet customers' needs and organisational objectives. Concepts covered include service facility, managing facilitating goods, forecasting demand, managing waiting lines, process improvement, inventory management, service supply relationship and service quality.

### **Supply Chain Management**

This module introduces students to the process of planning, implementing, and controlling the operations of the supply chain. It will cover the movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin to point-of-consumption. The module also emphasises the effect supply chain management has on the success and profitability of the organisation.

### **Understanding Buyer Behaviour**

The module provides students with a basic understanding of buyer behaviour concepts. It explores the different types of buying decision processes and the various influencing factors that affect buyer decisions. Buyers could be consumers or corporate buyers. Topics covered include consumer decision-making processes, perceptions and attitudes, consumer demographics and lifestyles, and cultural and group influences.