DIPLOMA IN BUSINESS PROCESS & SYSTEMS ENGINEERING (T43)

Course Overview

Have an interest in both business and engineering? You don't have to pick one – get the best of both worlds with a Diploma in Business Process & Systems Engineering! As Singapore establishes itself as a world-class service centre and logistics hub, the demand for tech-savvy professionals with multidisciplinary knowledge and skills is on the rise.

In this course, you will be trained in the application of both business analytics and system engineering principles. You will learn business process improvement techniques to provide insights for future business planning and use the systems thinking approach to optimise business productivity and profits.

In today's digital economy, professionals with both skill sets are highly sought-after. The multidisciplinary training you receive will position you well for careers in a wide variety of industries such as manufacturing, logistics and services in the areas of healthcare operations, finance, retail and more.

To download a copy of our 4-page course brochure, click here.

Get the opportunity to attain the below certification(s) throughout the course of your study:

- Microsoft Excel Specialist & Expert Certification (awarded by Microsoft)
- ICDL Asia Certification (at least 3 competencies-based skills)
- Associate Project Manager Certification (approved by Institution of Engineers, Singapore)

UNIQUE CURRICULUM

Our curriculum incorporates a unique blend of engineering and business, giving you the versatility to succeed in today's highly competitive markets.

STRONG BUSINESS APPLICATION

Learn to apply data analytics to the business environment. You will be able to leverage business analytics tools, decision analysis, statistics, computer programming and mathematics knowledge and skills to provide solutions to optimise businesses and enhance productivity.

MANY CAREER OPPORTUNITIES

As this course is aligned with the key pillars of Singapore's growth engine, and tuned to the business needs of companies in the industry, you will be well-equipped to excel in diverse industries such as manufacturing, logistics, healthcare, F&B and retail, or to pursue further studies in many diverse fields.

Entry Requirements

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

Subject	Grade
English Language (EL1)*	1-7
Mathematics (E or A)	1-6
Any one of the listed subjects^	1-6
Any two other subjects, excluding CCA	
2023 Planned Intake	**100**
Net ELR2B2 aggregate range (2023 JAE)	**5 - 16**

Note: *Applicants should not be suffering from severe vision impairment.*

* SPM / UEC holders must have a minimum of grade 6 for the Bahasa Inggeris (English Language) subject.

^ List of acceptable subjects: Biology, Biotechnology, Chemistry, Combined Science, Computing/Computer Studies, Design & Technology, Electronics/Fundamentals of Electronics, Physics/Engineering Science, Science (Chemistry, Biology), Science (Physics, Biology), Science (Physics, Chemistry)/Physical Science.

What You'll Learn

YEAR 1 | YEAR 2 | YEAR 3 | TPFUN

You will receive a firm foundation in fundamental business concepts through lab work, study trips to companies and group-based learning opportunities. These will equip you with critical thinking skills, along with knowledge of fundamental engineering processes and systems.

Core Subjects

Subject Code	Subject	Credit Units
EBZ1004	**Business Fundamentals** This subject provides you with an overall view pertaining to the four pillars of business: Management, Marketing, Money and Manpower. Introductory topics correlating to the four pillars of operation - Management Fundamentals, Marketing Principles, Financial Statements and Organisation Behaviour, will be taught.	4
EEE1001	**Circuit Analysis** This subject provides a good foundation in DC and AC network analysis. You will learn the basic principles of electric circuitry and how to apply circuit theorems to analyse DC and AC networks.	6
ESE1006	**Computer Programming for Problem Solving** This subject covers the process of decomposing a problem into a sequence of smaller abstractions. The abstractions are implemented in software in a structured top-down approach. Software implementation includes the process of designing, writing, testing, and debugging program code.	4
EEE1003	**Digital Fundamentals 1** This subject provides basic knowledge of digital electronics and circuits.	5

	Topics include number systems, operations and codes, logic gates, Boolean algebra and logic simplification, combinational logic, functional blocks, latches and flip-flops.		
EMA1003	**Engineering Mathematics 1** This subject teaches pre-calculus techniques required for an engineering course. It trains you in engineering problem-solving approaches using the appropriate mathematical tools. Topics such as simultaneous equations, matrices, trigonometric, exponential and logarithmic functions, complex numbers and vectors will be covered.	**4**	^
EPZ1001	**Introduction to Processes & Systems** This subject provides you with a basic understanding of the concepts, tools and approaches to business process management as well as the context in which these approaches are made within larger systems of business organisations or entities.	**4**	^
ESZ1002	**Quantitative Methods** This subject introduces basic statistical concepts. Topics include descriptive statistics, probability distributions, estimation of population parameter, hypothesis testing, and simple linear regression.	**4**	^

You will gain a deeper understanding of process management, improvement, optimisation and innovation. These, when applied with data analysing techniques, facilitate sound decision-making by companies. You will also learn about simulation for manufacturing and logistical systems.

Core Subjects —

Subject Code	Subject	Credit Units	
ESE1008	**Data Visualisation & Analytics**	**3**	^

	This subject covers the data analytics lifecycle, including gathering, cleaning, processing and visualising of data. Exploratory data analysis methods, descriptive and predictive analytics, and the presentation of insights, will also be covered.		
ESZ2001	**Decision Analysis** This subject provides an introduction to the decision making process and the models applicable to solve various decision problems. It will cover methods and techniques for decision making such as linear programming, transportation model, network models and decision trees.	**4**	^
EBZ2003	**Engineering Economy** This subject provides a basic understanding of the economic aspects of engineering applications, elements of costs and costing methods, and the relationship between cost behaviour and profit. You will be expected to analyse different investment alternatives for economic decision making. The subject also discusses using EVA (Economic Value Added) to measure business performance.	**4**	^
EMF3002	**Manufacturing Logistics & Simulation** This subject covers the concept of logistics in manufacturing, manufacturing planning, purchasing, warehousing, and simulation. PC software will be used to enhance your learning.	**4**	^
EQM2001	**Process Management & Innovation** Process Management is the management of business as a series of processes resulting in the creation/improvement of products and services that the customers need. This subject provides the understanding of concepts, theories and methods a	**4**	^

	team leader needs to initiate and carry out process improvement activities. Key topics include process management, analysis, improvement, and innovation.		
ESZ2002	**Process Optimisation & Improvement** This subject provides an overview on the concepts of quality improvement and process optimisation. It establishes the fundamental to quality concepts. You will learn how to analyse statistical control results, experimental designs, variations in processes and applying improvement techniques. Practical sessions using software applications will be integrated to enhance your learning.	**4**	
EBM2004	**Project Management** This subject aims to provide an overview of the principles and concepts in project management and equip you with the theoretical foundation and skills in using project management tools. It emphasises the knowledge and practices which are widely applied in project management. Topics covered include the project management framework, project management processes and project management knowledge areas.	**4**	
ESZ1001	**Systems Concepts & Tools** This subject provides you with the basic knowledge and skills to apply systems thinking language and modelling approaches to solve real-world issues. Tools that will be introduced include causal loop diagrams, archetypes and system dynamics. You will also learn to use a software to model issues using the systems thinking and modelling approach. The relationship between systems thinking and the learning organisation will also be discussed.	**4**	
ESZ3002	**Systems Modelling & Simulation**	**4**	

This subject provides an introduction to fundamental concepts of system modelling and simulation. Topics include basic model development, input analysis, modelling and statistical analysis. A simulation software will be extensively used as a vehicle to enhance your understanding and practical applications of the subject.

YEAR 1 YEAR 2 **YEAR 3** TPFUN

Through industrial internships and projects, you will have opportunities to learn in real working environments. You will be trained in customer relationship, service quality and supply chain management, and develop work-life skills such as initiative and adaptability.

Core Subjects —

Subject Code	Subject	Credit Units
EMP3002	**Major Project** In this subject, you will work in teams to integrate and apply your skills and knowledge to implement your projects in a practical work-and-learn environment. Besides research, design, analytics, project management, communication and problem solving skills, the emphasis will also be on innovation, teamwork and self-learning.	**8**
EPZ3001	**Customer Relationship Management** This subject covers a broad overview of Customer Relationship Management (CRM), with a focus on the use of technologies to implement CRM. The topics covered include the basic concepts of CRM, influence of technologies on CRM, enhancement of CRM through market research and analytics, implementation of CRM strategies, use of CRM tools, methods of assessing and quantifying the value of CRM and finally, the management and retention of customers.	**4**

ESZ3001	**Supply Chain Management** This subject covers the concept behind supply chain management in competitive business survival and key strategic drivers that improve supply chain management performance of an enterprise. It also covers the importance of managing inventory, selecting appropriate distributing and transportation network.	**4**

Elective Subjects

Subject Code	Subject	Credit Units
BLO2010	**Distribution Centre Management** This subject provides an overview of the role of a Distribution Centre (DC) in the supply chain. It also covers the various activities performed within a DC and the significance of these activities on customer service and total logistics costs. It focuses on the major resources to be applied in a DC and explains how they interact with one another in contributing to the DC's effectiveness and efficiency. It will also cover the significance of providing DC services to the Third-Party Logistics industry.	**4**
CCF2C02	**IOT Security** This subject covers the knowledge and skills required to analyse and troubleshoot IoT vulnerabilities and threats. You will use latest technologies to perform risk assessments and recommend mitigation strategies for common security issues in IoT systems.	**4**
EBZ2006	**Service Quality & Management** This subject introduces the key concepts and principles of Service Quality and Management. Topics covered include concepts of quality services, essential skills in customer services, principles and strategy of	**4**

service management, methods for service quality measurements and service recovery.

YEAR 1 YEAR 2 YEAR 3 **TPFUN**

You will also take this set of subjects that equips you with the crucial 21st-Century life skills you need to navigate the modern world as an agile, forward-thinking individual and team player.

TP Fundamentals (TPFun) Subjects —

Subject Code	Subject	Credit Units
ESI3001	**Student Internship Programme** This structured programme is designed to link your learning with the real work environment. You will be placed in organisation(s) with opportunities to apply the concepts and skills acquired in the course of your study. Besides reinforcing technical concepts and mastering of skills in areas that you have been trained, the practical training will enable you to build important skills such as problem-solving, communication, teamwork, and to cultivate good attitude and a strong work ethic.	**12**
ETX1001	**Effective Communication** This subject introduces the fundamentals of effective communication. It also covers how to communicate with and convince an audience through writing and speaking tasks. The skills in this subject will include the application of strategies for communication, appropriate vocabulary, language features, visual aids, tone and style. The **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) framework will also be applied when planning and engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.	**3**

ETX1002	**Professional Communication** This subject covers professional communication skills for the workplace and employability skills in the areas of career preparation. It covers communication and interpersonal skills, including effective virtual communication etiquette, and conducting oneself professionally in the workplace. In addition, essential career preparation skills such as resume writing and interview skills, needed to seek and secure work would be included. The **M**essage, **A**udience, **P**urpose and **S**trategy (MAPS) framework would also be applied when engaging in written and verbal communication. There will be opportunities to communicate and collaborate through active learning activities, apply digital and information literacy skills and build competence through self-directed learning.	**3**	^
GTP1301	**Current Issues & Critical Thinking** This subject covers current issues, including diverse local and global concerns, that will impact lives and may have critical implications for Singapore. There will be opportunities to build competence through self-directed learning, communicate and collaborate in active discussions and objectively analyse issues using digital and information literacy skills and critical thinking scaffolds.	**3**	^
GTP1201	**Career Readiness** This subject focuses on personal management skills. It develops an understanding of one's career interests, values, personality and skills for career success. It covers the necessary knowledge, skills and attitudes needed to succeed in the workplace and achieve professional goals. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning methods, and acquire the skills of being a lifelong learner.	**1**	^

GTP1202	**Career Management** This subject focuses on career management skills. It covers the importance of workplace readiness skills to adapt and respond to the changing job market environment. Career ownership and continuous learning for lifelong employability will be emphasised. There will be exposure to apply digital and information literacy skills, build competence through self-directed learning, and acquire the skills of being a lifelong learner.	**1**	^
EGS1002	**Global Studies** This subject provides essential skills and knowledge to prepare students for an overseas experience. They will examine the elements of culture and learn the key principles of cross-cultural communication. In addition, they will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment. The subject prepares students to be responsible global citizens and leaders who can contribute to the global community through effective communication and collaboration.	**3**	^
GTP1302	**Guided Learning*** The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills. Students will enhance their problem solving and digital literacy skills through this subject.	**3**	^

EIN1001	**Innovation & Entrepreneurship** The subject is designed for learners from all disciplines to embrace innovation in either their specialised field or beyond. Learners will be taught to apply the Design Thinking framework to develop problem statements, ideate and identify feasible solutions. Learners will be exposed to several tools for prototyping. In addition, commercial awareness will be imbued in learners through various innovation and entrepreneurship concepts or tools. This subject also prepares students to be self-directed lifelong learners who are digital and information literate. It nurtures communicative and collaborative citizens who can use objective analysis in problem-solving.	**2**
GTP1101	**Leadership Fundamentals** This subject focuses on self-leadership based on the values of integrity, respect, and responsibility. Increasing awareness of self and others will lay the foundations for personal and relationship effectiveness. Consequential thinking, clear articulation of personal values and visions, emphatic listening, and collaboration in serving others are some of the essential skills covered in this leadership journey. There will be opportunities to build and to apply the concepts of being a values-centred leader.	**2**
GTP1102	**Leadership in Action** This subject focuses on Service Learning as an experiential platform to apply the tenets of Self and Team Leadership. Service Learning will be the capstone project for this subject, which will require an analysis of the diverse needs of the community, collaboration with community partners and demonstration of learning, including key elements of empathy. There will be opportunities to build and	**1**

	to apply the concepts of being a values-centred leader.		
LSW1002	**Sports & Wellness** The subject enables students to build a good foundation for healthy living. Students will have the opportunity to participate in hands-on practical sessions where they will experience and develop both physical and technical skills in their chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, students will be able to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will also be supplemented by health-related topics that span the dimensions of health, such as diet, nutrition, stress and weight management, to provide students with a holistic approach to healthy living. This subject also prepares students to be self-directed and accountable for lifelong learning for good health.	**2**	
TGS1001	**Sustainability & Climate Action*** This subject prepares students to be responsible global citizens and future leaders who can contribute to the global community. It introduces the topics of sustainability and explores how human societies can act to build a sustainable future. This subject focuses on the impact of climate change, potential solutions to climate change, and the future of the green economy from global and local perspectives.	**3**	

** Students must choose to take either **Sustainability & Climate Action** or **Guided Learning**.*

GRADUATION REQUIREMENTS

Cumulative Grade Point Average	min 1.0
TP Fundamentals	36 credit units
Diploma Core Subjects	82 credit units
Diploma Elective Subjects	4 credit units
Total Credit Units Completed	min 122 credit units