DIPLOMA IN INFORMATION TECHNOLOGY (T30)

Course Overview

How does my Grab app locate the nearest available driver? Can I get the lights at home turned on five minutes before I get there? The answers lie with Information Technology.

From communication and education to healthcare, transportation, entertainment, finance and business, Information Technology influences nearly every aspect of human activity today.

In this course, besides acquiring programming and software development skills, you will also learn to incorporate AI, data analytics and other technologies to enhance the applications you develop. As demand for IT professionals continue to rise, set yourself apart from others by taking on elective subjects like Advanced Manufacturing, Business Analytics and even Fintech in your final year.

Join us and embark on an exciting tech journey with immense job opportunities!

VERSATILE SKILLSET
Get your skates on to becoming a versatile application developer, with strong skills in machine learning and agile methodologies for projects in IT.

LEARN FROM THE BEST
With our long history of excelling in National and Regional competitions, TP students have no doubt proven their mettle in the ICT sector!

RICH INDUSTRY PARTNERSHIPS
Work on innovative projects with industry clients at our Agile IT Solutions Centre and gain deep practical skills to prepare you for the future of IT. Also leverage on opportunities to acquire industry certifications in areas such as programming and data analytics.

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 two other subjects	1-6
2022 Planned Intake	**100**
Net ELR2B2 aggregate range (2021 JAE)	**6 - 16**

To be eligible for selection, applicants must also have sat for one of the following subjects: Additional Combined Science, Additional Science, Biology, Biotechnology, Chemistry, Combined Science, Computer Studies, Creative 3-D Animation, Design & Technology, Engineering Science, Food & Nutrition, Fundamentals of Electronics, General Science, Human & Social Biology, Integrated Science, Physics, Physical Science, Science (Chemistry, Biology), Science (Physics, Biology), Science (Physics, Chemistry), Science (Physics, Chemistry, Biology).

What You'll Learn

YEAR 1 | YEAR 2 | YEAR 3 | TPFUN

Strong Foundation Skills
Learn to develop your own mobile and web applications with the coding and user interface skills you acquire. Also, learn the fundamentals of networking, and discover how to create your own analytics dashboard.

Diploma Subjects - Core Subjects —

Subject Code	Subject	Credit Units
CIA1C07	**Logic and Mathematics** This subject covers logic, sets, functions, recursion and graphs. It covers mathematical processes for developing algorithms in computing and other real-life applications. Topics covered include the fundamental mathematical concepts needed for computing.	**3**
CIT1C19	**User Experience and Interface Design** This subject introduces the concept of Human-Centered Design, and its practice to create useful digital products and interfaces that offer an enriching user experience (UX). The topics covered include deisgning interfaces, need findings, sketching and prototyping for interactive experiences, and usability testing.	**3**
CIT1C18	**Computational Thinking** This subject introduces students to the fundamentals of computational thinking and their application in developing programming solutions for problems. Topics covered include programming concepts, simple data structures and programming techniques.	**4**
CIT1C20	**Coding and Development Project** This subject introduces students to coding principles and practices using an object-oriented approach. The subject also introduces the development of an IT application using the latest technologies. Topics covered include object and classes, composition, simple data structures, application architecture, design and development.	**4**

CIA1C11	**Data Visualisation and Analytics** 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.	**4**
CIA1C06	**Database Application Development** This subject introduces the fundamental concepts of relational database systems, the design methods specific to relational database, database manipulation using a database query language, and the techniques of implementing relational databases. It will also cover implementation of simple applications to access relational database.	**4**
CIT1C14	**Data Structures and Algorithms** This subject introduces students to the fundamentals of recursion and data structures in solving problems using a programming language. Topics covered include stacks, queues, linked lists and trees. Searching techniques and sorting algorithms will also be covered.	**4**
CCF1C02	**IT Systems Security Essentials** This subject introduces students to the key principles of information security namely confidentiality, integrity and availability and their application in various real world scenarios. Topics covered include IT law, international standards, security policies, procedures, processes to protect IT systems against cyber-attacks and information breaches and the architecture and organisation of the digital components of a computer system.	**4**
CMC1C08	**Network Technology** This subject covers the theoretical and practical aspects of networking and its related technologies. Topics covered include network protocols and communications, Ethernet networks, TCP/IP networking model, IP addressing, virtual local area networks (VLANs), routing and switching concepts and static and dynamic routing.	**4**

YEAR 1 **YEAR 2** YEAR 3 TPFUN

Develop Innovative Business Applications
You will acquire advanced skills in full stack development, secure coding practices, Internet of Things, machine learning and mobile application development. These will enable you to develop applications across multiple platforms and industries.

Diploma Subjects - Core Subjects

Subject Code	Subject	Credit Units
CAI2C08	**Machine Learning for Developers** This subject introduces the fundamentals of machine learning principles and practices. It covers a range of machine learning models and algorithmic machine learning methods, such as supervised learning.	**4**
CIT2C18	**Mobile App Development** This subject introduces the techniques and practices of programming and implementation of applications on multiple devices and platforms. Topics covered include an overview of how mobile applications are used in various industries, user interface and mobile application development across platforms.	**4**
CIT2C20	**Full Stack Web Development** This subject introduces the concepts of full-stack web-based applications. Topics covered include designing web pages and implementing the front-end and back-end technologies of a web application. Technological and design issues of web-based application development will also be discussed.	**4**
CIT2C22	**DevOps Essentials** This subject covers the development and deployment of applications using DevOps tools and Agile methodology. It introduces the concepts of Continuous Integration, Continuous Delivery and Continuous Deployment.	**4**

CIT2C23	**Agile Methodology and Design Thinking** This subject covers the concepts and techniques of Agile methodology and the design thinking process. It also introduces elements of project management and exposes students to real-life application development cycles to enable them to employ a greater user-centric approach in designing software applications.	**4**
CIT2C24	**Cloud Application Development** This subject introduces the concepts of cloud microservices. Topics covered include the architectural styles of cloud microservices, the value proposition behind microservices cloud computing, and available technology stacks to implement and deploy cloud-native applications with a Microservices architecture.	**4**
CMC2C16	**IoT Application Development** This subject covers the concepts of Distributed System Architecture like Service-Oriented Architecture, Representational State Transfer (REST) and Web Services, identification of technology and design principles for connected devices as well as prototyping techniques for developing web services.	**4**

Step out as a Professional
You will select elective modules such as business analytics or game development to expand your learning to other fields of IT. You will work on real-world projects in areas such as IoT, artificial intelligence, mobile and web applications. You will also have the chance to learn from experts and work for clients in local or overseas companies to hone your skills in developing software applications and solutions.

Diploma Subjects - Core Subjects

Subject Code	Subject	Credit Units
CMP3102	**Major Project** This subject involves the application of knowledge in a practical learning situtation. The subject covers acquiring new knowledge in technology and skills in project management, problem solving and communication.	**10**

Diploma Subjects - Elective Subjects

Business Analytics

Subject Code	Subject	Credit Units
CDA2C02	**Data Mining and Business Analytics** This subject introduces the fundamental concepts of machine learning. Topics covered include supervised and unsupervised learning and classification.	**4**
CDA2C04	**Data Storytelling** This subject covers graphing fundamentals, graphing properties and building dashboards for reporting purposes using relevant statistical modelling and analysis techniques. The subject also introduces the knowledge and skills to apply the data storytelling framework and principles of data visualisation to enable business users to communicate and narrate findings relevant to business contexts.	**4**

Fintech

Subject Code	Subject	Credit Units
CIT2C25	**Digital Banking and Financial Services** This subject introduces students to core financial services in retail banking and Fintech business models which disrupt financial services. Students will also learn about the digital banking services	**4**

	and open banking that transform traditional products. The subject will cover key retail banking market and services, the current trends and emerging technologies that drive digital banks, and Fintech techniques such as open application programming interfaces.	
CIT2C26	**Introduction to Blockchain Application Development** This subject introduces students to the concepts of distributed ledgers and the foundation of blockchain technology. It will also cover the application of blockchain in financial services. Students will develop an understanding of the blockchain development tools, create and deploy smart contracts and decentralised applications.	**4**

Advanced Manufacturing Technology

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**
ECC2014	**Industrial IoT Analytics** This subject covers the essential concepts and skills needed for implementing digital transformation in smart manufacturing plants. It covers the application of industrial software platforms to wirelessly interconnect sensors, Internet of Things (IoT) devices and equipment. Students will learn to develop dashboard for acquiring, analysing and displaying data that is commonly found in Advanced Manufacturing. Modern approaches in activation of hardware and software responses when interventions are required for process improvement or corrective actions are also covered in detail.	**4**

YEAR 1 YEAR 2 YEAR 3 **TPFUN**

You will also undergo TP Fundamentals (TPFun) – a set of subjects that equips you with the crucial life skills you need to navigate the modern world as an agile and forward-thinking individual, and team player.

TP Fundamentals (TPFun) Subjects

Subject Code	Subject	Credit Units
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. This subject aims to provide students with the knowledge and skills to: • apply critical thinking tools to examine current issues. • effectively search for relevant information from a variety of sources. • evaluate research information. • cite sources to support their views. • articulate an informed opinion about current issues.	**3**
CTX1001	**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**

CTX1002	**Professional Communication**	**3**

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.

The subject aims to equip students with the knowledge and skills to:

- communicate effectively in the workplace using principles of effective written communication and interpersonal skills.
- apply effective job search and interview skills in their career preparation.

GTP1101	**Leadership Fundamentals**	**2**

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.

The aim of this subject is to guide students to:

- design a personal growth plan based on strengths, values and purpose.
- apply the attributes of logical and emotional intelligence to improve team effectiveness.
- identify the key messages of respect in relationships.
- apply the principles of effective personal financial management.

GTP1102	**Leadership in Action**	**1**

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 to apply the concepts of being a values-centred leader.

This subject aims to equip students with the knowledge and skills to:

- plan and carry out a project to demonstrate empathy towards people in a diverse community.
- apply diploma core knowledge and skills through the Service Learning platform to address community needs.
- reflect on the Service Learning experience when working in teams and with community partners.

GTP1201	**Career Readiness CARE1**	**1**

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.

This subject aims to equip students with the knowledge and skills to:

- analyse personal characteristics that can contribute positively to achieving personal, educational and career goals.
- make career decisions that are aligned with their interests, skills and values.

GTP1202	**Career Readiness CARE2**	**1**

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.

This subject aims to equip students with the knowledge and skills to:

- identify their work profiles to help them in their career choices in a changing job market environment.
- take career ownership for continuous learning and lifelong employability.

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**
CIN1001	**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**
CGS1002	**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 citizens and leaders who can contribute to the global community through effective communication and collaboration.	**3**
CGS1003	**Managing Diversity at Work*** This subject explores the concepts of identity, diversity and inclusion at the workplace. It examines the relationship between identity and diversity, the benefits and challenges of diversity and the strategies that promote inclusion and inspire collaboration in a diverse workplace. Examples of the elements of diversity covered in this subject include nationality, generation, ethnicity and gender. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.	**3**
CGS1004	**Global Citizenship & Community Development*** Students will examine the meaning and responsibilities of being a Global Citizen, in order to contribute towards a more equitable and sustainable world. In addition, students will learn how sustainable solutions can support community development, and, execute and critique a community action plan that addresses the needs of a specific community/cause. The subject prepares students to be responsible citizens and leaders who can contribute to the global community through effective communication and collaboration.	**3**
CGS1005	**Expressions of Culture*** This subject provides a platform for an understanding of culture and heritage through modes of expression. Students will be introduced to global and local cultures via everyday objects, places and human behaviour seen through time and space. Students will explore issues and challenges in culture and heritage sustainability in community, national and global contexts. The subject prepares students to be responsible 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**
CSI3004	**Student Internship Programme** This structured programme is designed to link your learning with the real work environment. You	**16**

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.

*Students must choose one of these three electives under the 'Global Studies 2' subject, or take 'Guided Learning'

GRADUATION REQUIREMENTS

Cumulative Grade Point Average	min 1.0
TP Fundamental Subjects	40 credit units
Diploma Subjects - Core Subjects	72 credit units
Diploma Subjects - Elective Subjects	min 8 credit units
Total Credit Units Completed	min 120 credit units