School of
Informatics & IT

Contents

Walk into any bank, airport, school, office, hospital, park, theatre, train station and you will notice the pervasive power and influence of Information Technology. At the School of Informatics & IT, you will receive a strong foundation in IT and an understanding of specialised areas like big data, analytics, financial services, forensics, cyber security, game development and more.

As a leader in the field of IT education, we are recognised as a forward-looking and progressive School, providing the widest range of highly relevant courses. Our emphasis on developing problem-solving and thinking skills helps us to cultivate intelligent individuals who are independent, analytical and able to respond effectively to the needs of people and organisations. We have a strong culture of research, innovation and enterprise to nurture professionals who are ready for the industry. Communication skills and teamwork are also emphasised because these are key attributes for people working in a global economy.

Through our Student Internship Programme, you will have the chance to gain real life work experience in either local or overseas companies, organisations or research institutes. In fact, in your final year you can be attached to an organisation for up to one year as an intern, grooming and preparing you for the challenges of the workplace and giving you an edge when you seek employment.

Develop your talents and skills by taking part in enrichment programmes which include national and international competitions. You will also have the opportunity to complete professional IT certification exams. Participation in local and global community projects is something we strongly encourage. There are many opportunities for you to be involved in social outreach projects to make a difference in the lives of others. After three years, you will graduate with the confidence, qualities and skills to add value to the organisations you join.

To ensure that our curriculum remains relevant to the industry, we work closely with employers to maintain quality, industry relevance and high academic standards. An advisory committee, comprising leading industry professionals from a range of companies such as Autodesk, Cisco Systems, EMC, Fujitsu, the Infocomm Development Authority of Singapore, IBM, Microsoft, SAS, ST Electronics and more, provide advice to the School on its strategic direction and development to ensure that the courses we offer prepare you well for the future.

Specialist Centres and Learning Enterprises

Agile IT Solutions Centre

This Centre is a Learning Enterprise where staff, students and industry engage in providing solutions to real-life business and organisational challenges by developing solutions using Agile methodologies and design thinking. The use of Agile methodologies help improve productivity in developing IT solutions, demonstrating in the process a keen sensitivity and responsiveness to user needs.

Centre of Attachment for Business Analytics

The School of Informatics & IT is a Centre of Attachment (CoA) for Business Analytics. This is an initiative in collaboration with the Infocomm Development Authority of Singapore. The aim of the CoA is to equip people from industry with the necessary skills and knowledge in the use of statistics, statistical models and data mining tools for management reporting and strategic decisions. People from industry can be attached to the CoA. They will learn to develop, implement, and evaluate statistical models to support predictive modelling as well as define and implement testing methods to ensure the statistical models achieve the desired outcomes.

Innovation & Research Centre

This Centre is a Learning Enterprise for staff, students and industry to work together on translational research and innovation projects. It will host and enable participants to pursue applied industry research and participate in programmes that will help commercialise their innovations. The Centre's goal is to support participation in Research, Innovation and Enterprise (RIE) projects to nurture innovative scientists, IT engineers and competent IT professionals through funded projects.

Select-Start Studios

These Studios, located in the TP-Autodesk Serious Games Hub provide an environment which supports the development of digital games for education, business, human resource training, entertainment and a host of other purposes. It provides students with a real world learning environment and experience at each crucial stage of the game development process. Within the studios, students will have spaces for game design and game development.

TP Green Data Centre

Designed for maximum energy efficiency and minimum environmental impact, the Green Data Centre enables IT applications and services, as well as computing resources to be centrally stored, managed and disseminated, without compromising energy consumption.
The first Cisco Unified Computing System (UCS) deployed in South East Asia, it also hosts virtual desktop infrastructure technologies from partners such as VMware, EMC, Cisco and Fujitsu.

TP-Cisco Internet of Everything (IoE) Centre

The Internet of Everything (IoE) Centre at the School of Informatics & IT is a collaboration with Cisco which enables government agencies to funnel industry specific IoE solutions development and other related activities to it. Cisco helps to develop TP staff and students' technical capabilities in the area of IoE from embedded device level, design interface level, and networking level to the application level.

TP-IBM IT Service Management Centre

Established in collaboration with IBM Singapore, this Centre functions as a real-time learning enterprise that provides students with a holistic environment in which theory is put into practice as they focus on managing IT Systems, providing IT solutions to clients, monitoring service performance levels and adopting best practices that meet industry standards. The Centre is based on the IBM IT Services Framework which includes IBM's portfolio of products and practices to provide an integrated hands-on training on IT service management.

TP-IBM Retail Analytics Centre

Established in collaboration with IBM Singapore, this Centre exposes staff and students to IBM's business analytics technologies and methods used in a live production environment. IBM annually engages their retail clients to work with the School's staff and students at the Centre to carry out proof-of-concept and client projects in the area of retail analytics.

TP-IBM Security Operations Centre

The Security Operations Centre provides knowledge and skills training to staff and students in IBM's service management processes, methods and cyber security technologies. Staff and students get opportunities to work alongside IBM security professionals on security projects as well as leverage IBM's Global Academic Initiative to support TP's IT security related subjects. Students who are attached to this on-campus centre will gain unique hands-on experience in all aspects of cyber security monitoring and analysis, under the supervision of TP staff as well as IBM consultants and experts.

TP-Pivotal Data Science Academy

At this academy located in the School of Informatics & IT, full-time students taking the Big Data Management & Governance and Business Intelligence & Analytics diploma courses will take modules that support their coursework. The academy also provides short elective courses and a six-week projects programme designed to solve hypothetical problems as well as real problems in the areas of Big Data Management and Business Analytics. Students taking part-time courses would also benefit from modules offered by this academy.

TP-RSA Security Operations Centre

This Centre provides an environment equipped with the most advanced IT security and analysis technologies including RSA Security Analytics, SecOps and ECAT. RSA will impart knowledge and best practices on developing and managing an intelligence driven SOC operations to staff and students.

TP-SAS Business Intelligence & Analytics Centre

Established in collaboration with SAS Institute, this Centre provides the latest infrastructure, facilities, software, and datasets to facilitate learning of comprehensive business intelligence and analytics skill sets in a data-rich environment. This Centre is capable of supporting the end-to-end business analytics life cycle, and focuses on areas such as business intelligence, data mining, web analytics, social media analytics and predictive analytics. It also promotes industry collaboration and capability building by enabling students and staff to undertake relevant industry projects, and conduct applied research and development in advanced analytics.

TP-Thomson Reuters Financial Risk Management Centre

Established in collaboration with Thomson Reuters and equipped with its financial software, and premium financial information terminals, this Centre provides students with the unique opportunity to learn in a live financial market environment that familiarises them with investment banking and risk management operations.

Ui/Ux Future Lab

Also at the TP-Autodesk Serious Games Hub, we have the Ui (user interface) and Ux (user experience) labs where students will learn about human computer interaction and engage in testing out their applications. Beyond evaluating current user interfaces and user experiences the Ui/Ux Future Lab is also equipped to work on new forms of interactions for future devices and applications. The labs are equipped with the latest equipment such as state-of-the-art eye tracker system for evaluations. The results of the evaluations help students refine their interface and improve the overall user experience.

Big Data Management & Governance

> **"** There is a clear demand for graduates who have skills and knowledge in the area of Big Data Management & Governance. Your graduates will fill a known need in the big data value chain with the skills they acquired from this course.
>
> **Mr Eric Goh**
> Managing Director
> EMC Computer Systems
> (South Asia) Pte Ltd

Do you know that big data plays a major role in our lives? For instance, big data assists soccer clubs in how they use data to gain a strategic competitive advantage in soccer. Digital cameras placed in stadiums track every player on the pitch for game insights, while soccer players wear state-of-the-art equipment like GPS trackers, acceleration sensors and heart rate monitors so that their game preparation can be analysed and optimised.

Big data also extends itself to everyday activities such as online shopping. Websites are leveraging big data to provide a better shopping experience for their customers. For instance, online shopping giants like Amazon use big data to cut delivery times by predicting what online shoppers are going to buy and start delivering the product even before the customer clicks 'buy'!

Indeed, with big data gaining popularity in today's landscape, it is an exciting time for big data professionals. Recognising this, the Singapore Government has come up with initiatives to create a vibrant Data and Analytics ecosystem and position the country strategically as an international Data and Analytics Hub (www.ida.gov.sg). The first and only polytechnic to offer a full-time Big Data course, you will have opportunities to work with data at your fingertips. When you graduate, your skillsets will be in great demand by organisations. There are many opportunities and great potential for you to excel in this area.

Career Opportunities

Graduates can expect good career prospects with local and multinational businesses, government agencies, financial and banking institutions and consulting firms as Data Specialists, Data Engineers, Big Data Operations Specialists, Big Data Technical Support Specialists, Big Data Extract Transform Load (ETL) Developers, Data Virtualisation Specialists, Data Administrators and Data Warehousing Specialists.

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Minimum Entry Requirements

English Language (EL1) *	Grades 1 - 7
Mathematics (E or A)	Grades 1 - 6
Any three other subjects, excluding CCA	Grades 1 - 6

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).

* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

<u>Note:</u> *Applicants with complete colour vision deficiency are not eligible to apply for this course.*

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
Diploma Subjects	
Core Subjects	: 88 credit units
Elective Subjects	: min 8 credit units
Cross-Disciplinary Subjects	: min 9 credit units
Total Credit Units Completed	: min 128 credit units

Course Structure

TP Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI1C07	Database Information Systems	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIG1C01	Introduction to Data Science	1	3
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
CFI2C03	IT Project Management	2	4
CIA2C01	Data Warehouse Modelling	2	4
CIA2C02	Data Analytics & Presentation	2	4
CIG2C01	Big Data Architecture & Systems	2	4
CIG2C02	Programming for Big Data	2	4
CIG2C03	Big Data Acquisition & Quality Management	2	4
CIG2C05	Big Data Virtualisation Concepts & Techniques	2	4
CIG2C04	Data Marshalling & Transformation	2	4
CIG2C06	Data Security & Governance	2	4
CMC2C15	Operating Systems	2	4
CMP3202	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI2C02	Business Intelligence Systems	2	4
CIA2E01	Text & Social Media Analytics	2	4
CIA2C05	Data Mining Concepts & Techniques	2	4
CMA2P51	Quantitative Techniques	2	4
CIT3P51	Web Analytics	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Business Intelligence & Analytics

> " *We strongly support Temasek Polytechnic's BIA course which aims to prepare more graduates in this area to meet global demands; which would also support Singapore's position as a business analytics competency centre for Asia.*
>
> **Mr Francis Fong**
> Managing Director
> SAS Institute Pte Ltd

To run a successful business, you must understand customer needs, preferences and purchasing trends. You need to know what's available in the market, what's selling well, and what your competitors are up to. Yes, that's right – you need to gather intelligence and analyse it to propose smart business strategies. In essence, you will be the thinker behind successful businesses. Analytics professionals have an exciting career in store, for the Singapore Government is positioning the country strategically as an international Data and Analytics Hub as well as a Smart Nation (www. ida.gov.sg). If you like Mathematics and Statistics, have a knack for spotting trends among seemingly unrelated facts, and want to help businesses do better and compete more effectively, then take up this course which will position you for an exciting and rewarding career.

You will learn to:
• apply knowledge from Business, Analytics, IT and Project Management to propose business solutions that help companies succeed;

• gather information from a wide variety of sources, including social media platforms and websites in order to analyse and gain insight for businesses;

• use project management skills to manage business analytics projects and deliver timely information and insights to businesses and decision makers.

You will also undertake projects that equip you with working experience and provide you important business domain knowledge that you require as a professional in this field. Furthermore, you will enjoy exciting opportunities for internship in local or overseas companies where you will gain valuable skills, working with diverse people in a dynamic work environment. You can further your studies at local or overseas universities, leveraging the advanced standing arrangements that we have.

Career Opportunities

Graduates can expect good employment prospects across many industries such as local and multinational businesses, government, financial and banking institutions and consulting firms as Business Intelligence Analysts, Business Analytics Specialists, Business Analytics Technology Consultants, Customer Relational Management (CRM) Analysts, Data Mining Specialists, Data Warehousing Specialists, Web & Social Media Analysts and Research Analysts.

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* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

<u>*Note:*</u> *Applicants with complete colour vision deficiency are not eligible to apply for this course.*

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
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TP Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
BRM1005	Marketing Fundamentals	1	4
CFI1C07	Database Information Systems	1	4
CFI1C11	Business Process Management	1	3
CIA1C02	Quantitative Analysis 2	1	3
CIA1C04	Quantitative Analysis 1	1	4
CIA1C05	Data Preparation Techniques	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C13	Business Information Systems	1	3
CMC1C05	IT Infrastructure	1	4
CFI2C03	IT Project Management	2	4
CIA2C01	Data Warehouse Modelling	2	4
CIA2C02	Data Analytics & Presentation	2	4
CIA2C04	Business Intelligence Concepts & Techniques	2	4
CIA2C05	Data Mining Concepts & Techniques	2	4
CIA2C06	Business Intelligence Applications	2	4
CIA2C08	Systems Analysis & Design	2	4
CIA2C09	Quantitative Analysis 3	2	3
CIA2C11	Predictive & Prescriptive Analytics	2	4
CIA2E01	Text & Social Media Analytics	2	4
CMP3103	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CIA2C10	Customer Relationship Management & Analytics	2	4
CIG2C03	Big Data Acquisition & Quality Management	2	4
CIG2C04	Data Marshalling & Transformation	2	4
CIG2C06	Data Security & Governance	2	4
CIT3P51	Web Analytics	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Cyber & Digital Security

> "
> *Developing security skills for a new cyber environment has taken on a new priority in the digital age. This course is designed to further equip students with IT and Cyber Security Skills that are in demand in the industry so that they know how to proactively predict, identify and react to potential threats.*
>
> **Tim Greisinger**
> Managing Director
> IBM Singapore

Viruses, trojans and hackers – these are some of the dangers lurking on the Internet, crippling government and business operations and leading to financial losses. Developing counter measures against them requires creative problem solving skills and talent. Highly skilled information security professionals with strong technical foundation and creativity are vital in battling such cyber threats. If you aspire to be in this highly regarded profession, then join this exciting course.

In the first year, you will master IT and security fundamentals. In your second year, you will master competencies in security ranging from network, system and application to cloud security and mobile security. Receiving hands-on training in state-of-the art facilities, you will learn how to conduct vulnerability assessments of computer and application systems, use ethical hacking tools and implement intrusion prevention solutions.

In your final year you will have experience working in the TP-IBM Security Operations Centre and TP-RSA Security Operations Centre, which we have set up with our industry partners. In addition, you will have

opportunities to be attached to local and overseas IT security companies where you can apply your knowledge and skills to information security projects and real-life situations. Our students have been attached to organisations like EMC, IBM, Interpol, RedHat, PriceWaterhouseCoopers and OCBC Bank.

You will attain sought-after professional certifications, such as the Cisco Certified Network Associate (CCNA) and RedHat Certified System Administrator/ Engineer (RHCSA/RHCE). Our graduates pursue degrees in local and overseas universities after completing this course, leveraging advanced standing arrangements that we have with these institutions.

Career Opportunities

You can expect good employment opportunities with local and multinational businesses, governments, financial and banking institutions, and consulting firms as IT security specialists/auditors, network and systems specialists, as well as IT security product developers and solutions providers.

Application

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CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCD1C02	Enterprise Networking	1	4
CCD1C03	Basic IT Security	1	3
CFI1C07	Database Information Systems	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object-Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
BLM2007	Legal Aspects of IT	2	4
CCD2C01	Internetworking Security	2	4
CCD2C03	Ethical Hacking & Intrusion Prevention	2	4
CCD2C04	Forensics in Digital Security	2	4
CCD2C05	IT Security Management & Audit	2	4
CCD2C06	Servers Administration & Security	2	4
CCD2C08	Secure Web Applications	2	4
CMC2C15	Operating Systems	2	4
CDF3C01	Incident Response & Management	3	4
CMP3601	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCD2C09	Enterprise System Security & Assurance	2	4
CDF2C02	Digital Media Forensics	2	4
CDF2C05	Application Forensics	2	4
CFI2C03	IT Project Management	2	4
CCD3C01	Security Technology & Innovation	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Digital Forensics

> *The increasing complexity of cyber crimes coupled with the fast evolving digital landscape that we operate in today, presents a challenging and dynamic environment for the Police to operate in. It is thus reassuring that TP is developing a pool of skilled digital forensic professionals whom the Police can tap in our fight against cybercrime.*
>
> Technology Crime Division
> Criminal Investigation Department
> Singapore Police Force

Digital forensics involves the analysis of evidence from any digital sources that can be used to prosecute criminals who have committed offences such as stealing information, and hacking into computers and network systems. The increase in cybercrimes has led to a huge demand for digital forensics specialists who can assist in criminal investigations and homeland security. If you have an analytical and inquisitive mind, join us to become a computer forensics investigator. You will learn to seize, secure, examine and reconstruct digital evidence to unravel the mystery behind a computer-related crime or cyber security incident one byte at a time.

The first polytechnic to launch a digital forensics course, we have established industry links and built a strong capability in the area of digital forensics. You will be equipped with a broad knowledge of IT, psychology and criminal law, and in-depth knowledge of digital forensic techniques in retrieving digital evidence from computers and networks. In the first year, you will master IT fundamentals and build strong foundations in computer science.

In your second year, you will learn to collect, preserve and analyse different file systems, media, applications and networks for digital evidence. In addition, you will learn the legal aspects of presenting digital evidence for a court-of-law and acquire basic knowledge of psychology to understand the motivation behind criminal activities.

In your final year, you will have the experience of working in a Security Operations Centre which we have set up with our industry partners, IBM and EMC, where you will apply your investigative skills in the management of cyber-security incidence. In addition, you may also be attached to organisations such as Interpol, Singapore Police Force and KPMG for internships that allow you to integrate and use knowledge in real-life situations.

You will have the opportunity to attain professional certifications in networking, open source and digital forensics. Our graduates can look forward to furthering their studies by choosing from a range of courses at local or overseas universities, leveraging on the advanced standing arrangements that we have.

Career Opportunities

You can expect to work in financial institutions, government/ law enforcement agencies and consulting firms in positions such as digital forensic analysts/ researchers and IT security analysts/ auditors.

Application

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CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCD1C02	Enterprise Networking	1	4
CDF1C01	Introduction to Digital Forensics	1	3
CFI1C07	Database Information Systems	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object-Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
GEN1016	Introduction to Psychology of Deviant Behaviour	1	3
BLM2008	Criminal Procedure for Forensic Analysts	2	4
CCD2C06	Servers Administration & Security	2	4
CCD2C08	Secure Web Applications	2	4
CDF2C01	Digital File Systems	2	4
CDF2C03	Network Security & Forensics	2	4
CDF2C04	Investigation Methodology & Techniques	2	4
CMC2C15	Operating Systems	2	4
CDF3C01	Incident Response & Management	3	4
CMP3901	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCD2C09	Enterprise System Security & Assurance	2	4
CDF2C02	Digital Media Forensics	2	4
CDF2C05	Application Forensics	2	4
CFI2C03	IT Project Management	2	4
CCD3C01	Security Technology & Innovation	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Financial Business Informatics

> "
> *With dual skills in IT banking processes and a keen knowledge of key financial systems, students from this course will be able to support investment operations as well as contribute as business analysts skilled in the banking domain. The training these students receive in Thomson Reuters products, enables them to help customers become more efficient and equips them to lead in the evolution of the global financial market.*
>
> **Mr Alfred Lee**
> Managing Director
> Global Sales and Account
> Management, ASEAN
> Thomson Reuters

In the local and global banking and financial services industry, there is demand for professionals who possess information technology skills and a sound understanding of financial business processes. Such techno-strategists, with their dual skills, are sought after because they can contribute significantly to the organisations they join.

This course equips you with the knowledge and skills to be technically and financially savvy. You will learn how banks and financial institutions are structured to operate in the global financial markets.

In your final year, you will get hands-on experience through attachments to banks and financial institutions. This will also provide you with the opportunity to use the knowledge you have acquired in your first two years and pick up important people skills so that you develop sensitivity to the needs of clients and organisations.

Upon completing the course, many of our students move on to undertake degree programmes in local or overseas universities, leveraging the advanced standing arrangements we have with them. In addition, many of our top alumni secured scholarships for university studies.

Career Opportunities

With unique dual skills in finance and IT, you are well-positioned for careers in financial institutions, and business/IT consulting firms. You can look forward to jobs as financial systems consultants, IT/business analysts or financial products settlements specialists.

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Minimum Entry Requirements

English Language (EL1) *	Grades 1 - 7
Mathematics (E or A)	Grades 1 - 6
Any two other subjects, excluding CCA	Grades 1 - 6

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).

Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
Diploma Subjects	
Core Subjects	: 88 credit units
Elective Subjects	: min 8 credit units
Cross-Disciplinary Subjects	: min 9 credit units
Total Credit Units Completed	: min 128 credit units

Course Structure

TP Core Subjects			
SUBJECT CODE	**SUBJECT**	**LEVEL**	**CREDIT UNITS**
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
BAF1007	Basic Business Finance	1	4
BAF1009	Fundamentals of Accounting	1	3
CFI1C07	Database Information Systems	1	4
CFI1C08	Financial Economics	1	4
CFI1C10	Core Banking & Financial Businesses	1	4
CFI1C11	Business Process Management	1	3
CIA1C04	Quantitative Analysis 1	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C09	Web Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C13	Business Information Systems	1	3
CMC1C05	IT Infrastructure	1	4
BAF2006	Fundamentals of Investment	2	4
CFI2C02	Business Intelligence Systems	2	4
CFI2C03	IT Project Management	2	4
CFI2C08	Fixed Income & Equities Processing	2	4
CFI2P14	Foreign Exchange & Money Market Processing	2	4
CIA2C08	Systems Analysis & Design	2	4
CFI3C01	Risk & Governance	3	4
CFI3C02	Wealth Management	3	4
CMP3801	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI2E01	IT Outsourcing	2	4
CFI2E05	Derivatives & Structured Products	2	4
CIA2C10	Customer Relationship Management & Analytics	2	4
CFI3E01	Financial Analytics	3	4
CFI3E02	Mobile Banking	3	4
CFI3E03	Portfolio Performance Management	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Game Design & Development

> "Singaporean companies have produced several international award winning games in recent years, fuelling the growth of the industry as a whole. This creates new employment opportunities for Singaporeans with the right skills and Personae Studios is proud to work with students from TP's Game Design & Development course in bringing us to the new digital future."
>
> **Edmund Koh**
> **Director**
> **Personae Studios**
> **Treasurer, Games Exchange**
> **Alliance**

This is a thrilling time for the video games industry with Singapore growing in status as a hub for the most exciting game companies. Video game companies which have produced many of the world's best games have set up offices here alongside renowned video game publishers and development studios. Together, they complement Singapore's strategy to be a leader in the Interactive Digital Media landscape.

Any person can play a video game; but to successfully develop a game that excites, engages, and educates an audience requires skill. These include skills in concept – such as digital storyboarding, production – including 2D/3D animation, and publication – involving the business of video games.

With our partnership with Autodesk and Unity you will gain a unique advantage working with the leading tools in the game industry. In addition, you will be part of the team which developed the first games course in Singapore to incorporate Autodesk Gameware into its curriculum. Our students developed *Moonless*, a third person perspective action adventure game with AAA rating, in collaboration with Autodesk and Fatshark, a Swedish game studio.

Our subjects allow you to have a strong understanding of and experience in the various aspects of the game production pipeline, giving you a firm grasp of the end-to-end process in developing a successful game.

Our lecturers, several of whom have worked on some of the world's best-selling video game titles, specialise in various areas of game production. They will help you acquire the skills to create your games from the initial stages of concept development and design, through to programming and the final stages of publishing a game.

To give you a head start in the industry, you will work on a Major Project to develop a showcase portfolio. Some of our students' projects include commercially available iPhone and Android games, as well as games for local companies and organisations. You will also have the chance to be attached to leading game developers, overseas companies and universities for your internship.

Upon your graduation, you can further your studies at local and overseas universities which we have good advanced standing arrangements with.

Career Opportunities

You will graduate with the skills to fill the following types of positions: game designers, graphics software developers, game content developers, game programmers and mobile game developers.

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Minimum Entry Requirements

English Language (EL1) *	Grades 1 - 7
Mathematics (E or A)	Grades 1 - 6
Any two other subjects, excluding CCA	Grades 1 - 6

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).

* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

<u>*Note:*</u> *Applicants with complete colour vision deficiency are not eligible to apply for this course.*

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
Diploma Subjects	
Core Subjects	: 81 credit units
Elective Subjects	: min 12 credit units
Cross-Disciplinary Subjects	: min 9 credit units
Total Credit Units Completed	: min 125 credit units

Course Structure

TP Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI1C07	Database Information Systems	1	4
CGE1C06	Game Design	1	4
CGE1C10	Game UiUx	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object-Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
CGE2C07	3D Game Texturing, Lighting & Animation	2	4
CGE2C12	Game Modelling	2	4
CGE2C15	Game Math & Physics	2	4
CGE2C16	Game Development	2	4
CGE2C17	Game Development Project	2	4
CMC2C15	Operating Systems	2	4
CGE3C06	Game Production & Publishing	3	4
CMP3702	Major Project	3	10

Diploma Subjects – Elective Clusters

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
Advanced Game Design			
CGE2P21	Advanced Game Modelling	2	4
CGE2P22	Advanced Game Design	2	4
CGE3P21	Game Engine Scripting	3	4
Advanced Game Programming			
CGE2E05	Programming for Procedural Game Content	2	4
CGE2C18	Game AI	2	4
CGE3C02	Mobile Game Programming	3	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Information Technology

> *More than 3 billion people with devices will be leveraging cloud services that cut across work and life. Computational thinking is a fundamental skillset for problem solving and for driving innovative products and services. Students from this course will be well-placed to lead future industry trends, and groomed to solve real world problems. This course provides a strong foundation for nurturing outstanding IT professionals who will benefit the industry when they graduate.*
>
> **Ms Jessica Tan**
> Managing Director
> Microsoft Singapore Pte Ltd

Are you interested in creating IT solutions for the world around you? Are you interested in joining a vibrant industry that is at the forefront of innovation? Are you interested in a diploma that gives you a general array of IT skills while offering the distinct advantage of branching out later into different areas?

Graduates from this course are able to use IT to transform the culture and environment of any business organisation, bank, hotel, airport, and hospital. They would be frontline innovators helping to bring software solutions to people and businesses through the use of technologies. If you enjoy solving problems and are passionate about developing solutions through IT, then consider this course in Information Technology.

You have two clusters of elective subjects to choose in this course:

• **Business Analytics Cluster:** focuses on analysing and interpreting data and converting them into useful insights for developing strategies for the organisation;

• **Game Development Cluster:** focuses on teaching you the knowledge and skills needed to design and develop games.

In your final year, you will integrate the knowledge that you have acquired to complete a major project. You will also be attached to either a local or overseas company as an intern.

This course has an established track record of producing highly successful students who have won top positions in national and international IT software applications and development competitions. Many of our graduates have also gone on to pursue both undergraduate and postgraduate degrees in local and overseas universities, with a significant number receiving attractive scholarships to further their studies.

Career Opportunities

With a broad-based education in IT, your employment prospects are excellent. You will be able to fill positions as IT business analysts, application developers and systems analysts in government organisations, software houses, large multinational corporations, financial institutions.

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Minimum Entry Requirements

English Language (EL1) *	Grades 1 - 7
Mathematics (E or A)	Grades 1 - 6
Any two other subjects, excluding CCA	Grades 1 - 6

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).

* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
Diploma Subjects	
Core Subjects	: 84 credit units
Elective Subjects	: min 8 credit units
Cross-Disciplinary Subjects	: min 9 credit units
Total Credit Units Completed	: min 124 credit units

Course Structure

TP Core Subjects			
SUBJECT CODE	**SUBJECT**	**LEVEL**	**CREDIT UNITS**
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI1C07	Database Information Systems	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object-Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C13	Business Information Systems	1	3
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
CGE2C09	Software Engineering	2	4
CGE2C11	Object-Oriented Analysis & Design	2	4
CIT2C12	Advanced Data Structures & Algorithms	2	4
CIT2C14	Enterprise Web Development & Testing	2	4
CIT2C15	Software Testing	2	4
CIT2E08	Mobile Device Programming	2	4
CIT2P32	Enterprise Security & Application Management	2	4
CIT2P44	Dynamic Web Application Development	2	4
CMC2C15	Operating Systems	2	4
CMP3102	Major Project	3	10

Diploma Subjects – Elective Clusters

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
Business Analytics			
CFI2C02	Business Intelligence Systems	2	4
CIG2C03	Big Data Acquisition & Quality Management	2	4
Game Development			
CGE1C06	Game Design	1	4
CGE2C16	Game Development	2	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Mobile & Network Services

> " The Internet of Things allow billions of devices, sensors, cloud infrastructure and business intelligence tools to come together to enable people to make informed decisions. This helps businesses to drive more innovation and services. Cisco predicts that it will create a massive opportunity worth $14.4 trillion over the next decade. Graduates from this course would be in high demand as they would have acquired the right skills to develop smart applications and services to respond to industry's needs.
>
> **Mr Irving Tan**
> President Asia Pacific & Japan
> Cisco Systems (USA) Pte Ltd

This course grooms you to become an expert in network systems. You will learn to develop Internet of Things (IoT) applications for various purposes on the latest cloud and mobile phone platforms. Imagine a world where billions of objects can sense, communicate and share information over the internet. These interconnected objects have data regularly collected, analysed and used to help streamline business processes and provide innovative new services to increase productivity and save costs. You will also be trained in the best practices and use state-of-the-art tools from ITSM industry giants in our TP-IBM IT Service Management Centre, which is the first 'live' centre in an institution in Asia to offer real-life ITSM practice.

You will be specialising in the area of IT Service Management and Internet of Things (IoT), and acquire specific skills to help manage IT services for an organisation and create innovative IoT applications that can enhance the lives of people and business processes.

You will have a chance to work with companies such as Cisco Systems and IBM on projects. Our Student Internship Programme also allows you to gain valuable experience and exposure which prepares you as a professional. To provide you an edge when you graduate, the course also prepares you for professional certifications such as the Cisco Certified Network Associate (CCNA) and IT Infrastructure Library (ITIL), awarded by Cisco Systems and IBM respectively.

Our advanced standing arrangements with local and overseas universities also enable you to move on from a diploma to a degree easily to further your studies.

Career Opportunities

Upon successful completion of the course, you can enter a variety of challenging and rewarding careers as network administrators/engineers, computer systems and server administrators, wireless systems specialists, IoT developers, IoT systems specialists and ITSM technical specialists.

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Minimum Entry Requirements

English Language (EL1) *	Grades 1 - 7
Mathematics (E or A)	Grades 1 - 6
Any two other subjects, excluding CCA	Grades 1 - 6

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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).

* Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).

<u>Note:</u> *Applicants with complete colour vision deficiency are not eligible to apply for this course.*

Graduation Requirements

Cumulative Grade Point Average	: min 1.0
TP Core Subjects	: 23 credit units
Diploma Subjects	
Core Subjects	: 84 credit units
Elective Subjects	: min 8 credit units
Cross-Disciplinary Subjects	: min 9 credit units
Total Credit Units Completed	: min 124 credit units

Course Structure

TP Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCS1001	Effective Interpersonal Communication	1	2
CCS1002	Communication in the Workplace	1	2
CCS1003	Information Literacy for Effective Communication	1	2
CCS1004	The Essentials of Persuasive Presentations	1	2
LEA1001	Leadership: Essential Attributes & Practice 1	1	1
LEA1002	Leadership: Essential Attributes & Practice 2	1	1
LEA1003	Leadership: Essential Attributes & Practice 3	1	1
CSI3002	Student Internship Programme	3	12

Diploma Subjects – Core Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CFI1C07	Database Information Systems	1	4
CIC1C05	Computer Architecture	1	4
CIC1C06	Data Communications & Networking	1	4
CIM1C07	Human Computer Interaction	1	4
CIT1C05	Problem Solving & Programming	1	4
CIT1C06	Object-Oriented Programming	1	4
CIT1C12	Introduction to Computing	1	1
CIT1C14	Data Structures & Algorithms	1	4
CMA1C01	Computing Mathematics 1	1	3
CMA1C02	Computing Mathematics 2	1	3
CMC1C06	Introduction to the Internet of Things	1	3
CCD2C06	Servers Administration & Security	2	4
CMC2C18	IoT Network Technology	2	4
CMC2C15	Operating Systems	2	4
CMC2C16	IoT Application Development	2	4
CMC2C17	Smart Systems Development	2	4
CMC2P23	Internetworking Technologies	2	4
CMC2P41	IT Infrastructure Management	2	4
CMC2P42	IT Service Desk Management	2	4
CMC3C02	Software-Defined Networking	3	4
CMP3402	Major Project	3	10

Diploma Subjects – Elective Subjects

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
CCD2C05	IT Security Management & Audit	2	4
CMC2C10	Server Side Software Development	2	4
CMC2P51	IoT Data Management	2	4
CMC2P52	IoT Security & Privacy	2	4
CMC2P53	IoT System Design	2	4

Cross-Disciplinary Subjects

Students are required to obtain a minimum of 9 credit units from the list of Cross-Disciplinary Subjects.

Subject Synopses

BAF1007 Basic Business Finance
This subject provides a general overview of the balance sheet and profit and loss statement of the company. It also provides a basic understanding of the sources and allocation of funds within a business enterprise, and an appreciation of some of the financial tools and techniques used by the financial manager in the management of funds and other financial resources.

BAF1009 Fundamentals of Accounting
This subject covers double-entry bookkeeping, profit determination and contents of financial reports for sole proprietorship businesses. You will have opportunities through various learning methods to apply the knowledge to real world situations.

BAF2006 Fundamentals of Investment
This subject provides a framework for understanding and analysing securities, and covers the key institutional features and theories of investment. Topics covered include the investment environment, return and risk in an investment setting, common stocks, fixed income securities and alternative investments.

BLM2007 Legal Aspects of IT
The subject covers at an introductory level the law which is relevant to the information technology industry, and which an IT professional will be likely to apply in the course of his work or business.

BLM2008 Criminal Procedure for Forensic Analysts
This subject provides digital forensic professionals with an understanding of the criminal procedure and rules of evidence in Singapore necessary for the work of digital forensic analysts.

BRM1005 Marketing Fundamentals
This subject provides you with an understanding of the basic concepts and practices of modern marketing. It focuses on the role and the tools utilised by marketers in developing the appropriate marketing mix for target segments.

CCD1C02 Enterprise Networking
This subject covers the enterprise wired and wireless networking concepts. Basic theories of routing and switching, wireless architecture and their applications in an enterprise network environment will be discussed. You will learn the knowledge and skills to design, install and configure small to medium-sized wired and wireless networks.

CCD1C03 Basic IT Security
This subject covers basic elements on the topic of IT security, reviews operational planning and practices, and provides a foundation for discussion and implementation of security strategies to minimise operational risks in an organisation. You will understand the theoretical and practical aspects of basic IT security.

CCD2C01 Internetworking Security
This subject introduces you to internetworking security technologies, including Wide Area Network (WAN) and remote access, and the security techniques from host to Internet security. You will learn how to secure both wired and wireless access over an internetwork.

CCD2C03 Ethical Hacking & Intrusion Prevention
This subject discusses threats on the Internet and provides an understanding of how a cyber-attacker will penetrate a network. It equips you with the principles and practices of preventing such attacks, discussing threats such as malicious codes, website defacing and hacking, illegal access to unauthorised information, privacy violations, distributed denial of services and cyber terrorism. You will acquire knowledge of potential threats, various penetration strategies and methods, and the respective counter measures. You will also learn the principles of creating a secure network design.

CCD2C04 Forensics in Digital Security
This subject covers the concept and techniques required to discover and investigate evidence from various digital storage devices. Topics include using common tools and commercial toolsets for extraction and analysis of digital evidence. Network traffic capture and analysis would also be discussed and investigated for the tracing of specific information and source of attacks.

CCD2C05 IT Security Management & Audit
This subject aims to familiarise you with the various IT security policies processes and procedures, as well as best practices in industry and government. You will learn about the associated standards for risk management and the management of IT security. You will also learn how to plan, execute, report and follow up on an information security management system audit.

CCD2C06 Servers Administration & Security
This subject covers the concept and techniques required to configure and administer a typical networked server using common operating systems in the industry. Topics include installation of a server system, configuration of devices, disks and file systems with security configuration of Local Area Network (LAN) and Wide Area Network (WAN) environments. Administering of key server services, using various tools and system scripting to monitor and analyse its performance and security will be discussed and applied. The subject also covers the concepts of encryption methodology, Public Key Infrastructure, key distribution and authentication.

CCD2C08 Secure Web Applications
This subject focuses on secure web application design and development. It discusses the inherent threats and vulnerabilities of web applications and the corresponding counter-measures. In addition, it includes industry best practices such as OWASP (Open Web Application Security Project) Top Ten Web Application Vulnerabilities.

CCD2C09 Enterprise System Security & Assurance

The subject covers the security risks associated with the deployment and use of enterprise level server operating systems as well as services such as email, database, secure wired and wireless access and web. The subject teaches assessment of security risks when these systems are integrated and conducting penetration testing and incident response to ensure the integrity and security of the enterprise systems.

CCD3C01 Security Technology & Innovation

This subject covers topics such as security trends and technologies in the industry, the types of innovation, key elements of innovation and innovation skills required to move progressively from idea to impact. It discusses topics on security innovation relating to the methods, ideas, production, market needs, effective processes, impact and needs of customers.

CCS1001 Effective Interpersonal Communication

This subject introduces you to the principles of effective interpersonal communication. You will learn to consider the message, audience, purpose and strategy in all communicative acts. You will also learn the appropriate conventions to observe in social interaction and how to engage in and sustain conversations.

CCS1002 Communication in the Workplace

This subject aims to equip you with the knowledge and skills to obtain employment and to develop confidence in handling both interpersonal skills and business correspondence in the workplace. You will learn job hunt skills. You will also discover ways to communicate effectively and tactfully in the workplace. You will learn to show sensitivity to your audience by using the concepts of message, audience, purpose and strategy.

CCS1003 Information Literacy for Effective Communication

This subject introduces you to research process skills to enable you to plan, prepare and present reports in written and oral form. You will learn to consider the message, audience, purpose and strategy when preparing reports and oral presentations.

CCS1004 The Essentials of Persuasive Presentations

This subject deals with the general principles of persuasion. You will be taught persuasive strategies to write a proposal and convince an audience about an idea, product or service. You will also be taught to consider the message, audience, purpose and strategy in written and oral presentations.

CDF1C01 Introduction to Digital Forensics

This subject introduces the principles of using digital evidence in forensic investigations and how this may lead to judicial or non-judicial proceedings. The emphasis of this subject will be on the application of sound forensics investigation processes using proper digital forensic tools such as Encase and forensics investigation techniques from the National Institute of Standards and Technology (NIST SP800-86).

CDF2C01 Digital File Systems

This subject introduces the principles of the most common media types and file systems found in operating systems and other digital media types.

CDF2C02 Digital Media Forensics

This subject covers three main areas: Mobile Device Forensics, Image & Video Forensics, and Correlation & Artificial Intelligence. Besides learning how to use different tools to extract and analyse digital media data from various mobile devices, you will also learn the fundamental elements of digital photos and digital videos. You will be taught to use different image and video enhancement techniques to process evidence for investigation purposes, matching and correlation technique, and the use of artificial intelligence.

CDF2C03 Network Security & Forensics

This subject covers the traffic analysis of data sources from various network equipment and systems, such as Web proxies, firewalls, intrusion detection systems, routers and switches, which may contain evidence that can be used to solve a security incident. The topics included are the design and implementation of a secured enterprise network, as well as the analysis of network traffic and logs collected from different data sources in a network to understand attacks and trace suspect activities.

CDF2C04 Investigation Methodology & Techniques

This subject introduces you to the methodology and techniques of analysing multiple sources of digital evidence to determine the cause and effect of an incident. The topics in the subject include the application of best practices and techniques to relate digital evidence to cybercrimes. You will review various case facts to determine how they are related to a crime, reconstruct an incident as well as produce and present findings in a manner that is acceptable to a court of law. You will also go through case examples on best practices and how cause and effect were derived during an investigation.

CDF2C05 Application Forensics

This subject covers the investigation of applications such as web browsers, word processors and standalone executables, as well as Internet applications such as emails and social networking websites, in the context of digital forensics. These applications may be used for illegitimate means or to introduce malicious software into a computer system. In these cases, digital forensic analysis would be carried out to determine the source and extent of the damage.

CDF3C01 Incident Response & Management

This subject covers the policies, plans and procedures for computer security incident response of events such as denial of service, malicious code and authorisation access. It establishes proper processes for assessing the impact of incident on business and implements effective methods of collection, analysis and reporting of data.

CFI1C07 Database Information Systems

This subject will introduce you to the fundamental concepts of relational database systems, the design methods specific to relational database and the techniques of implementing relational databases. It will also cover database manipulation using a database query language.

CFI1C08 Financial Economics

This subject covers basic microeconomic and macroeconomic principles as well as the role and concepts of money and interest rates in the monetary system. The functions of the government as a regulatory body and the impact of government policies in the financial market will also be covered.

CFI1C10 Core Banking & Financial Businesses

This subject covers core banking services and processes in the retail, private, commercial and investment banks. Supporting systems and technologies that are used to meet strategic, operational and regulatory requirements in the banks are also introduced.

CFI1C11 Business Process Management

This subject covers business processes, process modelling and analysis techniques. It will also cover topics on streamlining processes and implementing simple processes automation.

CFI2C02 Business Intelligence Systems

This subject introduces concepts and techniques of turning raw data from various sources into information to help companies better manage their performance. It also covers data warehousing concepts, principles and applications of Business Intelligence and the underlying building technologies.

CFI2C03 IT Project Management

This subject covers the key processes from project initiation to project closure such as project planning, project monitoring and control, resource management, project implementation and closure.

CFI2C08 Fixed Income & Equities Processing

This subject covers the concepts, benefits and associated risks of the Fixed Income and Equities asset class. It also covers deal processing and trade settlement of related products using financial application systems.

CFI2E01 IT Outsourcing

This subject introduces the global trends in IT Outsourcing. Topics covered include the rationale for outsourcing, the different types of outsourcing, development of the Request for Proposal (RFP), Service Level Agreement (SLA), Change Management as well as Contract and Service Management. The risks and legal issues associated with outsourcing will also be covered.

CFI2E05 Derivatives & Structured Products

This subject covers the concepts of prime brokerage and collateral management, and their applicability to the various financial derivatives and the processes involved. It also covers the concepts for the various types of financial derivatives and structured products; deal processing and trade settlement of related products by using financial application systems.

CFI2P14 Foreign Exchange & Money Market Processing

This subject covers concepts of Foreign Exchange and Money Market, instruments and trade processes involved. Trade processes include settlement, reconciliation and revaluation of trades. Analyses of trades and the related risks in Foreign Exchange and Money Market will also be covered.

CFI3C01 Risk & Governance

This subject introduces the Monetary Authority of Singapore (MAS) regulations and risk management guidelines for financial institutions. Topics covered include the MAS Act, internal controls for risk management, credit risk management, market risk management, operational risk management, technology risk management, and audit considerations.

CFI3C02 Wealth Management

This subject introduces the financial planning concepts and techniques used in designing a portfolio that meets the varied needs of high net worth individuals and business owners. Topics covered include the wealth management advisory process, investment and portfolio management, client relationship management, investment fund products and other financial products like life assurance and taxation issues.

CFI3E01 Financial Analytics

This subject covers the concepts and techniques behind predictive analysis, scoring models, and the development of financial models as well as how they can be harnessed to bring greater value to organisations in the banking and finance industry.

CFI3E02 Mobile Banking

This subject introduces the services and applications offered by the mobile platform in the banking and finance industries. The concepts of designing and implementing simple mobile applications that are relevant to financial services will also be covered.

CFI3E03 Portfolio Performance Management

This subject introduces portfolio theory and the various models of portfolio management applied by organisations today. It will also cover technical analysis and industry-company analysis using current tools and techniques.

CGE1C06 Game Design

The subject emphasises the use of game design to improve ideas before and during implementation. It covers various aspects of game design, from initial target audience, player behaviour and attitude to aspects affecting implementation within the actual video game. By examining various successful video games within different genres, you will learn to include a variety of attributes in your video games such as motivation for the player and being able to generate re-playability.

CGE1C10 Game UiUx

This subject focuses on user interfaces and the user experiences of interaction within the game. You will learn the basics of how to create effective game interfaces using the appropriate tools and techniques, as well as understand the user perspectives and experiences of users interacting with game interfaces.

CGE2C07 3D Game Texturing, Lighting & Animation

This subject equips you with the fundamental knowledge in animation, lighting and texturing for game development. You will be able to produce key frame based biped animation and Tangent Space Normal map for real-time shader. It covers advanced texturing techniques such as Tangent Space Normal Mapping and real-time shader set-up via the 3D authoring tool's interactive development environment (IDE) interface. You will also be introduced to real-time 3D lighting parameters and biped animation.

CGE2C09 Software Engineering

The subject covers an overview of the entire SDLC from requirements gathering to deployment of a software project. Topics such as software development paradigms, software process metrics, configuration management, software quality assurance and the fundamentals of project planning will also be covered.

CGE2C11 Object-Oriented Analysis & Design

This subject introduces object-oriented analysis and design (OOAD) techniques using a suitable tool. The topics covered include use case model, use case specifications, domain model, sequence diagrams, view of participating classes (VOPC), database design and mapping class diagram to code.

CGE2C12 Game Modelling

This subject will introduce you to the 3D model creation workflow specifically for the game production pipeline used within the context of game development. You will learn to use Polygon Mesh construction methods and texturing concepts for 3D game production. This subject also introduces Digital Content Creation (DCC) tools that you will apply to 3D modelling techniques such as low-poly meshing and digital texturing practices such as using coordinate mapping function, and photographic texture creation for crafting 3D in-game art assets.

CGE2C15 Game Math & Physics

This subject will teach you the mathematics and physics concepts, principles and formulas that are crucial to developing games that look realistic, and how to apply these concepts into game situations such as simulating rigid-body collisions using momentum and energy. The subject includes geometry, trigonometry, vectors and matrices, and physics concepts, such as Newton's Laws of Motion and Forces and Energy, which will enable you to simulate realistic motion in games.

CGE2C16 Game Development

This subject provides you with the knowledge and skills to develop graphical interactive games through the use of existing game libraries and to create the component parts of a game, both assets and programming code, and then bring them together to produce a complete game. The subject covers game development techniques such as sprite creation, rendering and animation; collision detection; the main game loop; event handling and control of the frame rate. The in-game usage of sound effects will also be taught, as well as key programming concepts required in game development such as memory management, programming standards and debugging.

CGE2C17 Game Development Project

This subject introduces you to the key processes in the pre-game production, game production and post-game production stages. Topics on game industry roles and responsibilities, game development methodology, programming, design techniques and game-testing and quality assurance will also be covered.

CGE2C18 Game AI

The subject introduces the concept of AI within a game engine. You will learn the basic theories behind AI and explore techniques to apply AI using a game engine for various game types.

CGE2E02 Graphics Programming

This subject introduces you to the theory and technical skills required to program computer graphics for games. You will be able to make use of the programmable graphics pipeline to program basic 2D and 3D computer graphics. It also covers basic computer graphics concepts in the context of the programmable graphics pipeline such as colour, lighting, polygons and textures, as well as more advanced ones such as fog, alpha blending and computer graphics optimisation.

CGE2E05 Programming for Procedural Game Content

This subject focuses on programming specifically for procedurally generated content within a game. You will explore the techniques and approaches using a game engine to build procedural generated content for optimised performance.

CGE2P21 Advanced Game Modelling

This subject teaches you key techniques used in today's game industry for game character creation. You will learn to produce Object Space Normal Map and 3D game characters with complete texture maps and optimisation. This subject also covers the game character production workflow such as character-based modelling method, UV mapping, character mesh detailing and texture painting with digital sculpting tool, and techniques such as texture map baking approach and game model optimisation technique such as Level of Detail (LOD).

CGE2P22 Advanced Game Design

The subject emphasises the use of advanced game and level design concepts to improve ideas before and during implementation. You will be analysing specific areas of games, their appearance historically and their impact to the player. Arranging and producing a level will give you hands-on experience with factors like spawn point placement and level objectives construction.

CGE3C02 Mobile Game Programming

This subject equips you with programming skills and knowledge to develop mobile games for common mobile devices currently available in the market, to optimise code to suit mobile application life-cycles, to test application on emulators and devices, and to build a simple framework for games. It also introduces Software Development Kits (SDK) of mobile platforms, and how to use them to write games to run on embedded devices. You will learn about the mobile market landscape and the tools and platforms used for mobile games.

CGE3C06 Game Production & Publishing

This subject covers aspects of marketing and business planning specific to games and areas such as quality assurance and testing to ready the products for publishing onto various platforms for games. You will also cover the roles of development personnel in the production pipeline, testing techniques, intellectual property rights, game business models, and technological choices in developing and publishing games.

CGE3P21 Game Engine Scripting

This subject equips you with skills and knowledge to develop individual scripts within game engines and to understand, analyse and assemble the game engine elements within a game. It covers the use of game engines within games, from how the user may interface with the engine to how the engine interfaces with the other areas in the game. The subject uses standardised general-purpose modelling languages for conception of ideas and you will implement code within specific areas, such as emitting particles and activating cut scenes, within the context of the game engine.

CIA1C02 Quantitative Analysis 2

This subject equips you with statistical knowledge and skills that will enable you to analyse statistical problems. You will be able to make comparison between two or more populations of data to determine the relationship between them. The subject covers linear regression and correlation between a dependent variable and independent variable. Analysis of variance and chi-squared tests will also be covered.

CIA1C04 Quantitative Analysis 1

This subject equips you with the knowledge and skills to collect, measure and represent data graphically. You will be able to use inferential statistics to draw conclusions. The subject covers basic statistical concepts with emphasis on data analysis and presentation, frequency distributions, probability theory, probability distribution, statistical inference and hypothesis testing.

CIA1C05 Data Preparation Techniques

This subject introduces you to the fundamental techniques and computational skills to carry out data pre-processing for analytics. You will learn how to acquire and merge data from various data sources, explore data to identify quality issues, carry out cleansing and transformation to prepare data for analytics.

CIA2C01 Data Warehousing Modelling

This subject equips you with the knowledge and skills on data modelling techniques for data warehousing. On completion of this subject, you would be able to design and implement a data warehouse model. The subject introduces the fundamental concepts of data warehouse modelling and covers concepts and principles of data warehouse, introduction to data warehouse model design, data warehouse model implementation and data warehouse applications and tools.

CIA2C02 Data Analytics & Presentation

This subject equips you with knowledge and skills to process data, techniques of analysing data and presenting analysed data using analytics software applications. The subject covers graphing fundamentals, graphing properties and building dashboard for reporting purposes using relevant statistical modelling and analysis techniques. You will also learn how to prepare and present reports on data analysis to support managerial decision-making.

CIA2C04 Business Intelligence Concepts & Techniques

This subject equips you with knowledge and skills to integrate data and organise them into analytical reports for an organisation. The subject covers Business Intelligence (BI) concepts and techniques of turning raw data from various sources into information, and implementing BI applications to help companies manage their business performance.

CIA2C05 Data Mining Concepts & Techniques

This subject equips you with knowledge and skills to use data mining tools to analyse and segment data to explore and discover previously unknown patterns and relationships to generate useful information. The subject covers concepts, methodology, techniques and application of data mining. You will also learn several popular data mining techniques, such as cluster analysis, association analysis and decision tree.

CIA2C06 Business Intelligence Applications

This subject equips you with knowledge and skills to develop Business Intelligence applications for an organisation so that the organisation can align its business performance to identified goals. The subject covers the concepts, techniques and emerging technologies of Business Intelligence applications development. You will also learn the ethical and legal issues in developing Business Intelligence applications.

CIA2C08 Systems Analysis & Design

This subject equips you with the theory and practice of systems analysis and design to undertake the analysis of a given problem situation, to produce a definition of user requirements and to design an appropriate information system. The subject covers the concepts of system requirements analysis of a defined problem, system design using requirement specifications and the post implementation process. You will also learn the transition from business requirement analysis to design in the unified process of systems development, using case modelling and data flow diagrams.

CIA2C09 Quantitative Analysis 3

This subject teaches you the knowledge and skills to apply statistical concepts in the analysis of economic data, social science data and the data gathered from other domain areas. It covers non-parametric statistics, two-way Analysis of Variance (ANOVA) and multivariate analysis, including their applications in economics, social science and other domains.

CIA2C10 Customer Relationship Management & Analytics

This subject equips you with knowledge and skills to apply the concepts of Customer Relationship Management (CRM) and CRM systems in businesses, and analyse CRM data to help improve business performance. It covers the concepts of CRM, customer portfolio management, customer data analytics, and customer lifecycle. You will also learn the applications of CRM in marketing, sales force automation and service automation.

CIA2C11 Predictive & Prescriptive Analytics

This subject provides you with the knowledge and skills to create a predictive model based on historical data to predict future trends and behaviours. In addition, you will be taught techniques to propose better decision to take advantage of a future opportunity or mitigate a future risk.

CIA2E01 Text & Social Media Analytics

This subject equips you with the knowledge and skills to process textual data and social media for analytical insight. It covers topics such as social media analytics concepts and techniques, text analytics process and techniques such as information extraction, text categorization, cluster analysis and sentiment analysis.

CIC1C05 Computer Architecture

This subject introduces the architecture and organisation of the digital components of a computer. This will also include studying the various mobile devices. You will also learn about the central processing unit, bus, memory and the input/output interfaces of a computer.

CIC1C06 Data Communications & Networking

The subject equips you with the skills and knowledge to design, configure and implement a wired Local Area Network (LAN) for resource sharing and communication. You will be taught Network Protocols & Communications, Ethernet networks, TCP/IP networking model, IP Addressing, Virtual Local Area Networks (VLANs), Routing & Switching Concepts, Static & Dynamic Routing.

CIG1C01 Introduction to Data Science

This subject equips you with knowledge and skills in the emerging field of data science and in identifying business value for big data. The data science life-cycle, history and context, as well as the business value of analytics and big data will be covered in this subject.

CIG2C01 Big Data Architecture & Systems

This subject introduces you to the emerging data architectures driven by "Big Data" adoption. It covers new paradigms of data systems within the realm of "Big Data," which evolved from social media networks. You will be exposed to the concepts and techniques that have driven Big Data adoption and compare these with traditional data store architectures such as structured databases and data warehouses. Emerging data architectures such as real-time and complex event processing tools will also be covered.

CIG2C02 Programming for Big Data

This subject equips you with the knowledge and skills to program a data management application to manage big data. It covers commonly used scripting languages (such as Python) and how it can be used for big data collection and processing. The use of data analysis, web scraping and data structures in the context of big data will be covered. Other languages for data integration and processing (such as R) will be covered as well.

CIG2C03 Big Data Acquisition & Quality Management

This subject equips you with the knowledge and skills to acquire very large unstructured data sets from a myriad of data sources and to ensure data quality. It covers the concepts, methods and techniques to extract, transform and load (ETL) Big Data sets. It also covers various data acquisition and query techniques used in practice such as web crawling, integration to social media platforms, text systems and machine logs. You will also learn the tools and techniques used for the management of data quality.

CIG2C04 Data Marshalling & Transformation

This subject provides you with the knowledge and skills to gather and transform data into a standardised format for network transmission and storage. It covers methods and tools used to covert data objects into data streams, standard industry data formats, and data marshalling in Big Data systems.

CIG2C05 Big Data Virtualisation Concepts & Techniques

This subject introduces you to the concepts and techniques of data virtualisation. It will cover approaches to data management that allow retrieval and manipulation of data through a virtualised data abstraction layer. Various techniques to accessing data in-place, as well as data abstraction and transformation techniques will be covered. You will also be introduced to the differences between data virtualisation and the traditional ETL approach.

CIG2C06 Data Security & Governance

This subject covers data security and governance as a quality control discipline for assessing, managing, using, improving, monitoring, maintaining, and protecting organisational information. You will learn about concepts such as data security and access, data protection, data policies, business process management, and risk management surrounding the handling of data in an organisation.

CIM1C07 Human Computer Interaction

This subject introduces how human behaviour can influence the design, development and the use of computer systems. It also introduces how to analyse, design and evaluate a range of interfaces, based on users' needs and requirements. Topics covered include the principles of usability, user-centred design methodology and usability evaluation paradigms.

CIT1C05 Problem Solving & Programming

This subject introduces you to the fundamentals of problem solving and programming. These skills are taught through programming constructs as well as simple object-oriented concepts.

CIT1C06 Object-Oriented Programming

This subject introduces you to the principles and rationale behind an object-oriented approach to programming. Topics covered include objects and classes, composition, simple data structures, memory management, file input and output, inheritance and polymorphism. An object-oriented programming language is used to teach object-oriented concepts.

CIT1C09 Web Programming

This subject introduces the concepts of web programming. Topics covered include the development of form-based web application and data driven application. It also covers creation of web pages, and session and state management.

CIT1C12 Introduction to Computing

This subject introduces the concepts of computing and the application of computing throughout history. Topics covered include the history of computing, programming languages, operating systems, database systems, networking and the Internet, as well as the impact of these on business operations and day-to-day communication.

CIT1C13 Business Information Systems

This subject covers the role of information systems in various business domains, the concepts of information and processes in businesses and e-commerce/ m-commerce technologies.

CIT1C14 Data Structures & Algorithms

This subject introduces you 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.

CIT2C12 Advanced Data Structures & Algorithms

This subject introduces the principles of advanced data structures and the analysis of algorithms. Topics covered include algorithmic design, advanced sorting and algorithms on data structures such as graphs and heaps.

CIT2C14 Enterprise Web Development & Testing

This subject introduces you to the principles of Web 2.0 technologies, web services and testing of enterprise web applications. Topics covered include client-side scripting, Web 2.0 Application Programming Interfaces, web services and web testing techniques. An Integrated Development Environment will be used to design, implement, test and deploy an enterprise web application that incorporates Web 2.0 technologies, web services and databases.

CIT2C15 Software Testing

This subject introduces students to the fundamentals of software testing. Students will develop an understanding of different types of software testing and their application to development projects.

CIT2E08 Mobile Device Programming

This subject covers the fundamentals and concepts of developing mobile applications using a programming language. Topics covered include an overview of the mobile industry, user interface and mobile application development on a specific mobile platform.

CIT2P32 Enterprise Security & Application Management

The subject will cover topics on security threats and how they can be prevented, detected or reduced, symmetric and asymmetric cryptography technologies, and methods to identify, evaluate and ensure good security practices in application development.

CIT2P44 Dynamic Web Application Development

This subject covers the concepts of dynamic web-based applications. Topics covered include designing web pages and implementing the business and data layers of a web application. Technological and design issues of web-based application development will also be discussed.

CIT3P51 Web Analytics

The subject covers topics such as the underlying concepts of web analytics and related issues, trends and best practices. Measurement and analysis of web metrics and application of web analytics to search engine optimisation and marketing will also be discussed.

CMA1C01 Computing Mathematics 1

This subject equips you with the ability to use mathematics and mathematical processes as tools for developing algorithms in computing and other real-life applications. You will also be equipped with the knowledge and skills to do reasoning, proof and induction. The subject covers logic, sequences and mathematical induction, and sets. You will also learn the fundamental concepts of mathematics needed for the other core computing subjects.

CMA1C02 Computing Mathematics 2

This subject equips you with the ability to use mathematics and mathematical processes as tools for developing algorithms in computing and other real-life applications. You will also be equipped with the knowledge and skills to analyse numerical information. The subject covers functions, counting, probability and recursion. You will also learn the fundamental concepts of mathematics needed for the other core computing subjects.

CMC1C05 IT Infrastructure

This subject covers topics such as networking concepts, computer systems for interfacing with the network, security concepts that enable one to keep the IT network infrastructure safe and IT business continuity plan for an organisation. The design aspects affecting the client, server, network devices, wired, wireless links, systems software and security devices will also be covered.

CMC1C06 Introduction to the Internet of Things

This subject covers the concepts of the Internet of Things (IoT), its conceptual framework and how the IoT contributes to business and daily life. It will also cover the IoT architecture and gives an overview of the core technologies required for supporting IoT. It also covers typical application scenarios in the IoT.

CMA2P51 Quantitative Techniques

This subject provides you with the knowledge and skills to perform data and statistical analysis and familiarise students to the tools used for performing these analyses. The subject covers the concepts of statistical inference, hypothesis testing, linear regression and correlation analysis. You will use software tools to perform these analyses and make decisions based on the analysis results.

CMC2C10 Server Side Software Development

This subject equips you with the knowledge and skills to develop and deploy scalable server-side software. You will be able to develop the backend modules which provide services to the heterogeneous desktop and mobile clients. The subject focuses on creating an understanding of event driven programming, and business and data access objects development in a client-server architecture.

CMC2C15 Operating Systems

This subject introduces the structure, functions and mechanisms of operating systems. Topics covered include the basics of operating systems, the functions and goals of the main managers of operating systems as well as the design underlying some of the operating systems in practice.

CMC2C16 IoT Application Development

This subject equips you with the knowledge and skills to build interactive systems that can sense and respond to inputs from smart devices in the real world. It covers the concepts of Distributed System Architecture like Service-Oriented Architecture, Representation State Transfer (REST) and Web Services, identification of technology and design principles for connected devices and prototyping techniques for writing web services.

CMC2C17 Smart Systems Development

The subject covers the challenges and capabilities provided by mobile computing devices. Topics covered also include the tools and techniques for developing software applications for mobile platforms, including mobile applications that utilize the connectivity and other capabilities of mobile devices to connect and monitor data produced by a smart device.

CMC2P23 Internetworking Technologies

This subject covers Internetworking technologies and protocols for enterprise network environments. Concepts in network scalability, scalable routing/ switching technologies and protocols are also taught.

CMC2P41 IT Infrastructure Management

This subject introduces the concept and framework of IT Service Management, and the 12 ITIL (IT Infrastructure Library) processes used in implementing and operating enterprise IT infrastructure systems.

CMC2P42 IT Service Desk Management

This subject introduces the concept and framework of IT Service Desk Management, and the ITIL (IT Infrastructure Library) processes and functions used in supporting and operating IT service desks.

CMC2P51 IoT Data Management

This subject equips you with the knowledge and skills to apply techniques and tools to store, manage and analyse the data generated by smart devices in real time efficiently. You will learn cover topics that include the introduction to Internet of Things (IoT) data management, data security and privacy, the data handling process and cloud-based IoT services, as well as the use of data management tools.

CMC2P52 IoT Security & Privacy

This subject covers the security and privacy issues involved in the implementation of IoT applications and services. You will learn topics which cover cryptography, capability, access-control mechanisms, authentication models and privacy support through data abstraction, integration and data synchronisation.

CMC2P53 IoT System Design

This subject covers the design principles for connected devices and design methodology for an IoT system. You will cover topics that include the underlying principles in building interactive systems and using a combination of hardware, embedded software, web services and cloud computing platform that can sense and respond intelligently to inputs from connected devices in the real world.

CMC3C02 Software-Defined Networking

This subject equips you with the knowledge and skills to design, program and configure software-defined network (SDN) controllers, switches (physical and virtual), and virtualisation overlays. Topics covered include SDN architecture, standards such as the OpenFlow Standard, use of SDN in Data Centres and troubleshooting techniques using SDN.

CMC2C18 IoT Network Technology

This subject covers the knowledge and skills to establish the right networking technology for an IoT application. Students will gain an in depth understanding of the protocols behind the Internet of Things such as the lightweight Message Queuing Telemetry Transport (MQTT) protocol, which consumes little power and is designed to help sensors and other devices to communicate reliably.

CMP3102 Major Project

This subject involves the application of knowledge in a practical learning situation. The subject covers acquiring new knowledge in technology and skills in project management, problem solving and communication.

CMP3103 Major Project

This subject equips you with the skills and knowledge to apply the acquired business intelligence & analytics skills and knowledge from your curriculum to the design and development of a project deliverable. The subject involves the integration of analysis, design, development, implementation, testing, project management, presentation, and interpersonal skills as well as acquiring new skills in a domain-specific area to solving real-life problems.

CMP3202 Major Project

This subject involves the integration of knowledge and skills developed from the various subjects in the course. It helps you develop a practical understanding of the products, methodologies, processes, systems, project management and presentation skills needed for big data management and governance application projects. You will work in a team to develop, present and demonstrate a solution to a problem. This provides an opportunity for you to experience group work and the problems and difficulties inherent in project work where teamwork and cooperation are important success factors.

CMP3402 Major Project

This subject involves the integration and application of knowledge to a project in a practical learning situation. The subject will require acquiring some or all of the following: a practical understanding of the network infrastructure design, mobile and wireless system development methodology, application development and testing, ITIL methodologies, Internet of Things application development, as well as project management, problem-solving and communication skills.

CMP3601 Major Project

This subject involves the integration and application of knowledge to a project in a practical learning situation. It will provide an opportunity to develop a practical understanding of threat and vulnerability assessment, development methodology, evaluation processes, project management and presentation skills for security related systems projects.

CMP3702 Major Project

This subject helps you integrate and apply the knowledge and skills acquired from the various subjects in the Game Design & Development curriculum. It helps you develop a practical understanding of game development methodology, programming and design techniques, quality assurance, project management and presentation skills.

CMP3801 Major Project

This subject involves the integration and application of knowledge to a project in a practical learning situation. The subject will provide an opportunity for the development of a practical understanding of the products, methodologies, processes, systems, project management and presentation skills.

CMP3901 Major Project

This subject covers analysing real-world problems from the perspective of a digital forensics investigator. It will also include proposing and implementing a solution which involves the use of problem analysis, design and development, implementation and testing, project management, presentation, and interpersonal skills.

CSI3002 Student Internship Programme

This subject has a structured programme that will help to develop important workplace skills for application in a real work environment. The subject will cover a pre-internship training programme and a mentorship programme with the industry. The subject will also cover the roles and functions of an IT professional in an industry and ability to contribute effectively with a high level of professionalism in the workplace.

GEN1016 Introduction to Psychology of Deviant Behaviour

This subject introduces you to the theoretical and psychological perspectives of human behaviour. It will examine the psychological factors that relate to deviance and crime on a general level with specific focus on offences conducted with the assistance and use of digital and computer technology. Through this subject, you will be able to appreciate the contribution of psychology and apply it to an investigative process model.

LEA1001/1002/1003 Leadership: Essential Attributes & Practice (LEAP)

This programme comprises three core subjects – LEAP 1, 2 and 3. It seeks to cultivate in you the dispositions (i.e. attitude, skills and knowledge) towards the development of your leadership competencies. It is a character based leadership programme that enables you to develop leadership life-skills that embrace character as the core foundation for your leadership credibility and influence.