澳 門 理 工 學 院
Instituto Politécnico de Macau
Macao Polytechnic Institute

Macao Polytechnic Institute

School of Applied Sciences

Four-year Full-time

Bachelor of Science in Computing

Programme Handbook

2019-2020

IET The Institution of Engineering and Technology
Accredited Programme

Engineering Council
accredited degree

WELCOME

Welcome to the Computing Programme of Macao Polytechnic Institute (MPI) and welcome back if you are a returning student.

Please kindly be reminded that the institute has the following expectations from our students.

- To pursue their academic studies in an honest, ethical and responsible manner.
- To actively participate in various learning opportunities provided by MPI.
- To provide fair and constructive feedback on relevant aspects of their School/Programme.
- To enhance tolerance in the pursuit of knowledge.
- To attain ethical standards in support of the values and mission of MPI.
- To be aware of and follow the policies, procedures and regulations of MPI.
- To seek and pursue their own learning experiences.
- To engage in opportunities for self-development after their studies in MPI.

This handbook aids in your understanding of the Programme. It depicts the Programme and explains the Institute's procedures and aspects of the regulations that affect you. Read it carefully and keep it as a source of reference throughout the years. If you lose or mislay it, then you can obtain a copy from your year tutor or the soft copy from the programme website cp.ipm.edu.mo.

If you have questions about anything that you read in the guide, please ask your year tutor. You will be expected to be familiar with and observe the various guidelines, regulations and procedures that are covered in this handbook.

Please kindly be reminded that Student ID card is an important means to identify a student. Students are required to present this card when making use of library check-out service and computing facilities, and for examinations.

Students have the responsibility to provide updated personal details to the Student Affairs Office.

The Institute and Programme keep you informed about events and changes to teaching and activities in a number of ways: email and a virtual learning environment such as Canvas. We expect you to check these every day.

With best wishes for your time at the Computing Programme

Rita Tse, PhD.

Director, School of Applied Sciences

Table of Contents

SECTION 1 PRELIMINARY INFORMATION

The *Computing Programme* (formerly *Computer Studies Programme* – CSP) is one of the two programmes under the *School of Applied Sciences* (ESCA) in the *Macao Polytechnic Institute* (MPI). The degree is taught and examined entirely in English. Students in the Bachelor of Science in Computing will normally complete the programme in four years on a full-time basis. Students need to take 38 credits each year from Year 1 to Year 3 and 36 credits in their Year 4 and a total of 150 credits must be taken in order to obtain their Bachelor Degree. Scheduled teaching contact amounts to approximately 19 hours a week, and is timetabled between 9 am and 6 pm Monday to Friday. The three streams of specialisation offered to students are *Enterprise Information Systems*, *Gaming Technology* and *Computer Education*. Since 2012/2013, graduates from our programme with a Grade Point Average (GPA) more than 2.0 partially fulfil the *Institution of Engineering and Technology* (IET) Chartered Engineer (CEng) requirements.

Historical Development of the Programme

The history of the Computing Programme can be dated back to 1982 when the former University of East Asia, (now, University of Macao) started to offer a two-year Diploma Programme in Computer Studies through the College for Continuing Education, which was the first of its kind in the history of Macao. The Computer Studies Programme was later restructured to group under the former Polytechnic College of the University of East Asia. In 1991, the former Polytechnic College of the University of East Asia began to run as an independent higher education institute under the current name Macao Polytechnic Institute.

Since the inauguration of Macao Polytechnic Institute in 1991, the Computer Studies Programme (CSP) has implemented new curricula in 1993/1994, 1996/1997, 2000/2001, 2009/2010 and 2016/2017. Initially, CSP only offered day programmes for a 2-year Diploma programme and a 3-year Higher Diploma programme. In 1996/1997, an evening programme was offered to enable the working population to make use of their non-working hours to further their studies. Since 1998/1999, the Diploma programme ceased to accept any applicants. After the launch of the Bachelor of Science in Computer Studies Programme in 2000/2001, the latest Bachelor of Science in Computing Programme was offered in 2009/2010 in response to the general public's demand for a higher level of education, with the most recent update for 2016/2017.

Job Market

The demand of the programme as reflected in the Graduate Survey 2017, the gaming industry has absorbed the largest portion (50%) of the employed graduates. See Figure 1 below for more details about the employment sectors.

The demand for our graduates is high. Nearly half of the graduates were employed full-time (47.1%) as of Sept. 2017. Among the employment, 23.5% students' employment were secured before their graduation. All graduates reported being either very satisfied (10.0%) or satisfied (90%) with their jobs. See also Figure 2 below.

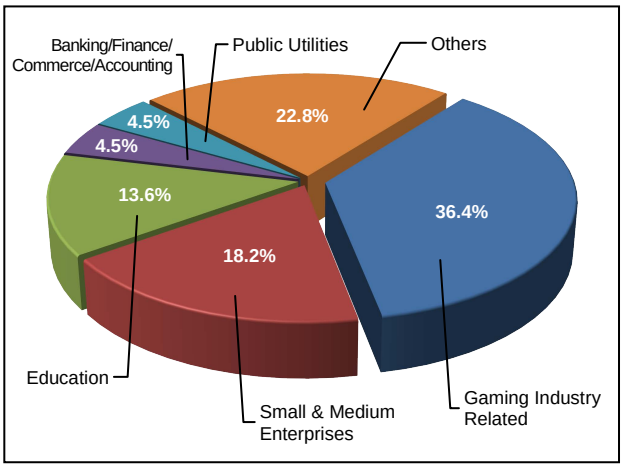


Figure 1 Employment Sectors (2018)

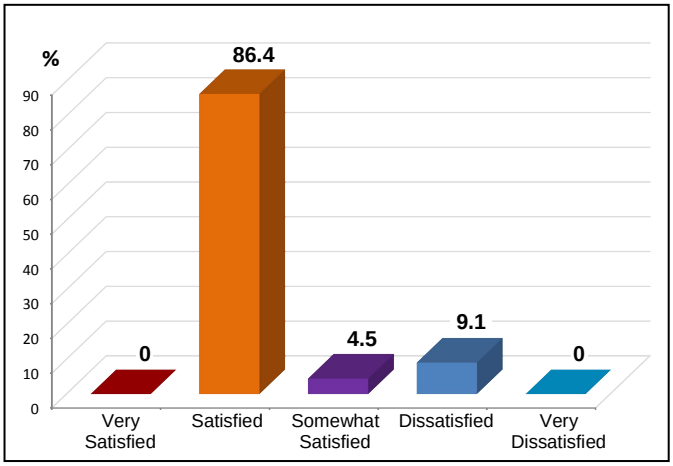


Figure 2 Job Satisfaction of Graduates (2018)

Institute/School Information

Macao Polytechnic Institute is a fully government-funded public institution. For over two decades since its inception, the Institute has grown and prospered into a modern and fully equipped teaching and research tertiary institute with a team of experienced and dedicated academic staff.

The MPI offers both full-time academic programmes of Bachelor Degrees as well as professional training. Its mission is to provide student-centred education and training that combines rigorous learning with the excitement of discovery, promoting academic freedom, integrity and creativity, supporting a diverse research culture in a dynamic environment, and instilling a spirit of service for the betterment of society.

Being one of the six academic schools offering degree programmes, the School of Applied Sciences, split from the formerly School of Public Administration, is one of the newly established schools in MPI. The mission of the School of Applied Sciences is to provide up-to-date and market-oriented (practical) education, to advance learning and knowledge, as well as to enable students to obtain the maximum benefits of higher education, in three programmes, namely Bachelor of Science in Computing, Master of Science in Big Data and Internet of Things, and Bachelor of Social Science in Sino-Lusophone Trade Relations.

SECTION 2 PROGRAMME INFORMATION

Programme Aims and Objectives

The design of the Bachelor of Science in Computing Programme aims at providing a sound practical knowledge of computing fundamentals and a thorough understanding of the analytical, design, and planning skills associated with the computing profession, in order to provide students with the means to compete successfully in the job market as well as to develop their academic competences in pursuing further studies. To broaden the participation of students in their communication with the global IT community, the Programme promotes internship, joint student projects with organizations, student activities, and overseas exchanges. Regular seminars, competitions and social gatherings are also held to enhance peer learning among students and further study opportunities.

Three streams of specialisation offered to students are *Enterprise Information Systems*, *Gaming Technology* and *Computer Education*. Students are expected to start their specialisation in the first semester of year 3. Upon completion of the Bachelor of Science in Computing Programme, students should be able to pursue further study and achieve the following (1-16):

1. Select and apply proven methods, tools and techniques to the effective and efficient implementation of information systems;
2. Evaluate computer systems in a local area network, and understand the additional requirements for connection to other networks through wide area networks;
3. Be competent in system development in the Internet and the web platform;
4. Work independently to design and implement a relational database, with an emphasis on how to organise, maintain and retrieve information from a DBMS;
5. Acquire essential knowledge in specific fields of computing disciplines including multimedia, security and artificial intelligence;
6. Acquire the perceptive skills needed to understand information presented in the form of UML diagram, flow chart or other industry standard formats;
7. Understand the need for and use of the necessary mathematical techniques;
8. Work independently to develop an understanding of, and the knowledge and skills associated with the general support of computer systems and networks;
9. Work as an effective member of a team in the analysis, design and development of software systems;
10. Use project planning and management techniques in systems development;
11. Understand the fundamental and operational issues of computer systems in business environments;
12. Equip with adequate written, oral communication and interpersonal skills;
13. Build the capacity and desire for lifelong learning and to learn advanced and emerging technologies on one's own;

For the *Enterprise Information Systems* specialisation,

14. Gain an in-depth understanding of the information technology related to enterprise information systems, with an emphasis on development of such systems to support business processes;

For the *Gaming Technology* specialisation,

15. Acquire the general and advanced knowledge of current technologies and operating environment in the gaming industry;

For the *Computer Education* specialisation,

16. Acquire the general and advanced knowledge of computer education and its practicing environment in secondary education.

Entry Requirement

There are two different entry routes, one for recruitment done locally in Macao, and one for recruitment from the Mainland of China.

For applicants from Macao: applicants have to be secondary school graduates (Form 6), and attend the Institute's admission examinations to show that they possess adequate English language and mathematics proficiency. The weighting of assessments is set as:

A. English written examination – 50%
B. Mathematics written examination – 50%;

Candidates are selected based on the ranking of the total score of the two examinations. The programme normally takes 20% of all the applicants.

For students from the Mainland of China, applicants must participate in the National College Entrance Examination (NCEE) in China and attain a certain level (admission level 1). This examination is a prerequisite for entrance into almost all higher education institutions at the undergraduate level in China. In addition, the applicants must be a resident of one of the following provinces/municipalities/ autonomous regions: Beijing, Tianjin, Shanghai, Chongqing, Guangdong, Fujian, Hainan, Hunan, Jiangsu, Zhejiang, Liaoning, Sichuan, Hubei, Guangxi, Henan, Shandong, Shaanxi, Yunnan, Guizhou, Jiangxi, Jilin, Heilongjiang, Anhui, Hebei, and Shanxi.

Programme Structure and Information

Structure of the Programme

The Computing Programme is aimed at producing graduates with good fundamental computing concepts, sound intellectual and practical skills, and ability to creatively apply computing and related technologies to business, industry and public sectors. Students in the Bachelor of Science in Computing will normally complete the Programme in four years on a full-time basis. 138 credits are for the required courses that include 15 credits in each specialisation, 6 credits for general elective courses and 6 credits for major elective courses. A total of 150 credits are required in order to obtain the Bachelor Degree.

Basically, the courses can be divided into 5 main groups:

Core Courses

Core courses are compulsory and constitute 30 courses (99 credits), each of which is a 3-credit 1-semester course, except for the Final Year Project which is an annual course of 12 credits. Core courses are divided into 9 subject areas, namely, "Computer Systems", "Data Management", "Gaming and Multimedia", "Information System Planning, Design and Control", "Mathematics", "Networking", "Programming and Information System Development", "Computer Education", and "Projects".

Specialisation Courses

The Programme provides three specialisations that will give students more in-depth knowledge in either Enterprise Information Systems, Gaming Technology or Computer Education. During their third and fourth year, students have to complete 15 credits within either one of the three specialisations. There are 5 compulsory courses in each specialisation.

Major Elective Courses

Major elective courses are vehicles for the delivery of the fundamental knowledge and skills necessary for career development in Information Technology related areas. 10 courses fall into this category and students have to pass any 2 of them at a total of 6 credits.

General Elective Courses

General elective courses are general education courses not directly related to Information Technology. They provide the students with wider horizons for a well-rounded education, and promote fulfilment of students' technical IT knowledge in the more general context of business and society. 12 courses fall into this category and students have to pass any 2 of them at a total of 6 credits.

English Language Courses

During their first 3 years of study, students have to take 6 English courses, each of which is 4 credits at a total of 24 credits. The English courses aim at improving students' English language skills within an academic framework at the Intermediate and Upper Intermediate levels, with reference to the IELTS Band 5 and Band 6.

Period of Study

The length of study for the Programme is normally 4 years. There will be two semesters in each academic year for academic activities. To complete the curriculum, students are required to complete satisfactorily all course requirements.

Students are expected to graduate within the normal study period of 4 years. Any approved long leave of absence, including deferment of study, shall not be counted towards the period of study. Students who are not able to complete the Programme within the maximum period of study (6 years for non-working students and 8 years for working students) shall be deregistered from the Institute.

Students who wish to extend their period of study beyond the maximum programme duration shall apply in writing to obtain prior approval from the School.

Design of Curriculum

Graduation Requirement

The students are awarded the Bachelor of Science in Computing when they have gained 150 credits, and passed all the required courses, including all the core courses, two major elective courses, two general elective courses, six English language courses, and the five courses in either one of the three specialisations.

Progression Arrangements

The Programme equips the students with the skills needed to work in the industry or pursue postgraduate studies in Macao or abroad.

The first year is the basic or fundamental year for the computing discipline, in which students will learn the fundamental knowledge in the area of problem solving and programming skills, as well as in the relevant supporting disciplines, such as mathematics, business and English.

The second year is the broadening year, in which students will accumulate more knowledge in computing, at an intermediate level. The Programme is designed to build up students' knowledge base in system design, database design, object oriented design and technique, networking skills, and their language skills.

The third year is designed to strengthen students' skills in system development on a larger scale and on more advanced technology.

The final year is designed to enhance students' theoretical thinking and to cover more advanced computing topics. During their third and fourth year, students will be able to choose courses that he/she likes most that will give in-depth knowledge in either *Enterprise Information Systems*, *Gaming Technology* or *Computer Education*.

Contents of the Academic Programme

As shown in Figure 3 below, the courses of the Programme are divided into several subject areas, including "Programming and Information System Development", "Networking", "Data Management", "Computer Systems", "IS Planning, Design and Control", "Gaming and Multimedia", "Mathematics", "Computer Education", and "Projects".

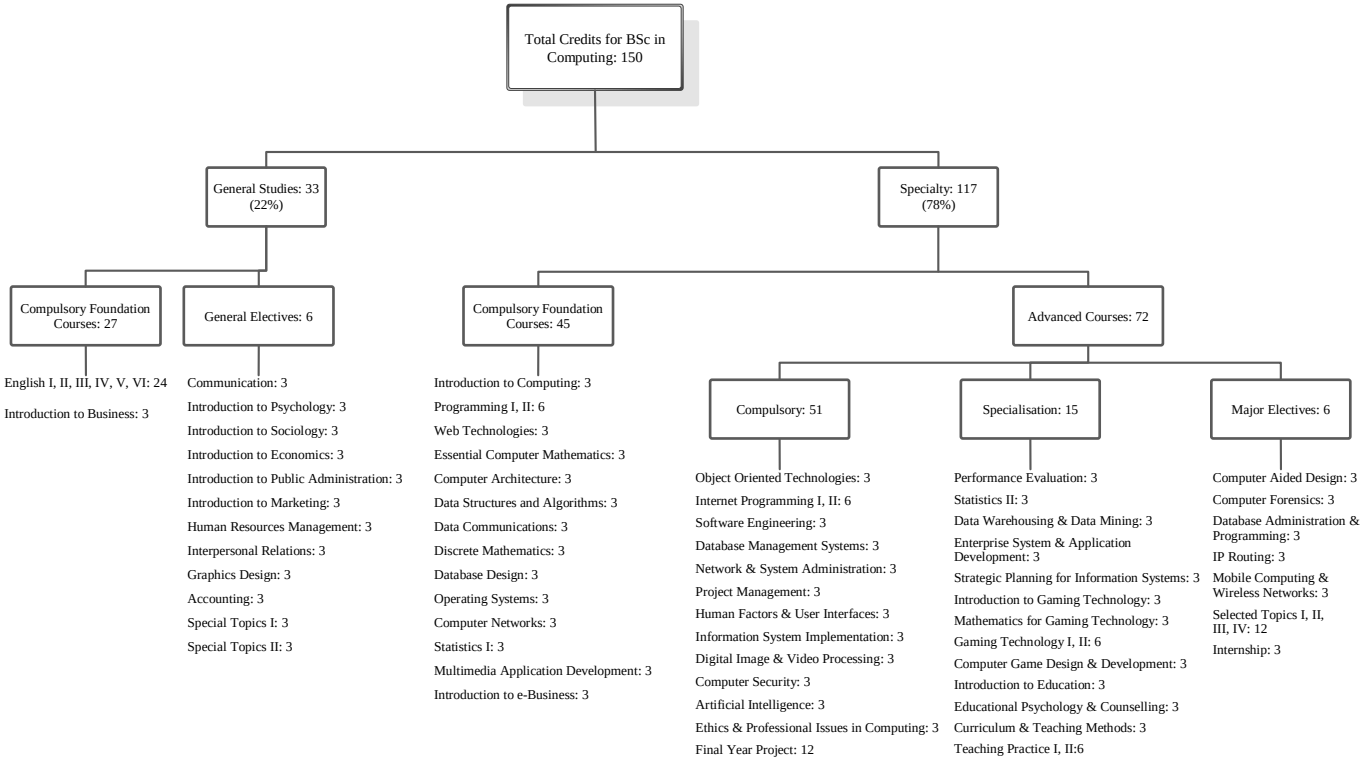


Figure 3 Course Structure of the Computing Programme

Programming and Information System Development

This subject area develops the programming skills of the students and emphasizes the importance of proper software development methodologies. Programming topics from basic to advanced level are delivered at a carefully designed pace. Important topics include safe programming, network programming, multithreading, database access and graphical user interfaces. Object-oriented concepts will be introduced in early courses and a popular programming language in the IT industry (e.g. Java) is used in most courses to streamline and reinforce students' learning experience. Development in popular platforms like desktop, web and mobile devices are covered.

Networking

The core of this subject area is computer networking. In addition to consolidating the theoretical background, students are exposed to practical IT skills like system installation, configuration, operation, troubleshooting and performance tuning in a hands-on laboratory.

In addition, the Programme organizes extra-curricular workshops and talks on professional qualifications and practical computing skills. Past workshops include Linux installation and web server setup. Students are also introduced to professional qualification examinations in Cisco Certified Network Associate (CCNA) and Oracle Certified Professional. A dedicated network laboratory provides networking devices for hands-on practice on the computer network administration course.

Data Management

The core of this subject area is database. Students are exposed to the database world, starting from database design, database management systems, data warehousing and data mining, continuing with data administration and programming.

Computer Systems

This subject area focuses on the understanding of computer hardware, system software and computing technologies and applications delivered at an intermediate to advanced level. Courses in this area, including Computer Architecture, Operating Systems, Computer Security, Artificial Intelligence, Computer Forensics, Computer Aided Design and Selected Topics, contribute essential knowledge in various fields of computing disciplines.

IS Planning, Design and Control

This subject area opens students' eyes on issues and concerns in the process of planning, designing and controlling the development of information systems. Courses in this area consist of Software Engineering, Project Management, Strategic Planning for Information Systems, Introduction to e-Business, Human Factors and User Interfaces, and Ethics and Professional Issues in Computing.

Gaming and Multimedia

This subject area focuses on the understanding of gaming technologies and multimedia application development. Besides the exposure to different gaming technologies, this area aims at equipping students in computer game development; therefore courses like Multimedia Application Development, Digital Image and Video Processing, Computer Game Design and Development are included.

Mathematics

Mathematics plays an important role in computer science. For instance, number theory lays the foundation for modern cryptography. The mathematics courses aim to sharpen students' logical thinking and prepare the necessary mathematics foundation for other courses in the Computing Programme.

Computer Education

Aiming at equipping students to be qualified IT teachers in secondary schools of Macao and the Mainland of China, this subject area includes three education courses (Introduction to Education, Educational Psychology and Counselling, and Curriculum and Teaching Methods) and two teaching practicum courses (Teaching Practice I and II). The practicum courses require students to teach in secondary schools of Macao under the supervision of qualified teachers. This provides students an opportunity to gain practical teaching experience and to develop their teaching skills.

Projects

Projects play a very important role in the Computing Programme and this subject area includes both an individual project and a group project. The Information System Implementation is a 3rd year group project course. Students will integrate their technical knowledge from the first two years to develop and implement software systems. The Final Year Project (FYP), a 4th year course, aims to measure students' ability in integrating knowledge obtained previously, acquiring new skills or knowledge, and solving problems. Students are required to develop software projects and / or carry out research project in a relevant area. The FYP is an individual project.

International Academic Recognition

The Computing Programme has successfully achieved academic accreditation granted by the Institution of Engineering and Technology (IET) in 2011. Qualified graduates of the Programme partially fulfil the Chartered Engineer (CEng) educational requirement internationally.

Renowned universities abroad such as University of London, UK, Westminster University, UK, and Victoria University, Australia have articulation agreements with the Macao Polytechnic Institute. Graduates / Students of the Computing Programme in MPI can directly transfer to those universities for further studies.

In 2009, the Memorandum of Understanding between the Institute and the UCLA (University of California, Los Angeles) Henry Samueli School of Engineering and Applied Science, was renewed, with a new item for better student exchange programme. The abovementioned agreement should provide our students with more opportunities for further studies abroad.

SECTION 3 COURSE INFORMATION

Table 1 – The Study Plan

Code	Course	Period of Study	Type	Hour	Credit
Year 1					
COMP111	Introduction to Computing	1st semester	Compulsory	45	3
COMP112	Programming I	1st semester	Compulsory	45	3
COMP113	Web Technologies	1st semester	Compulsory	45	3
MATH111	Essential Computer Mathematics	1st semester	Compulsory	45	3
MBUS100	Introduction to Business	1st semester	Compulsory	45	3
MENG111	English I	1st semester	Compulsory	60	4
COMP121	Computer Architecture	2nd semester	Compulsory	45	3
COMP122	Data Structures and Algorithms	2nd semester	Compulsory	45	3
COMP123	Data Communications	2nd semester	Compulsory	45	3
MATH121	Discrete Mathematics	2nd semester	Compulsory	45	3
MENG121	English II	2nd semester	Compulsory	60	4
	General Elective (I) (Table 2)	2nd semester	Optional	45	3
Year 2					
COMP211	Database Design	1st semester	Compulsory	45	3
COMP212	Programming II	1st semester	Compulsory	45	3
COMP213	Operating Systems	1st semester	Compulsory	45	3
COMP214	Computer Networks	1st semester	Compulsory	45	3
MATH211	Statistics I	1st semester	Compulsory	45	3
MENG211	English III	1st semester	Compulsory	60	4
COMP221	Object Oriented Technologies	2nd semester	Compulsory	45	3
COMP222	Internet Programming I	2nd semester	Compulsory	45	3
COMP223	Software Engineering	2nd semester	Compulsory	45	3
COMP224	Database Management Systems	2nd semester	Compulsory	45	3
COMP225	Network and System Administration	2nd semester	Compulsory	45	3
MENG221	English IV	2nd semester	Compulsory	60	4
Year 3					
COMP311	Multimedia Application Development	1st semester	Compulsory	45	3
COMP312	Internet Programming II	1st semester	Compulsory	45	3
COMP313	Project Management	1st semester	Compulsory	45	3
COMP314	Human Factors and User Interfaces	1st semester	Compulsory	45	3
MENG311	English V	1st semester	Compulsory	60	4
	Specialisation Course (Table 3 (a))	1st semester	Compulsory	45	3
COMP321	Information System Implementation	2nd semester	Compulsory	45	3
COMP322	Introduction to E-Business	2nd semester	Compulsory	45	3
MENG321	English VI	2nd semester	Compulsory	60	4
	Specialisation Course (Table 3 (b))	2nd semester	Compulsory	45	3
	Specialisation Course (Table 3 (c))	2nd semester	Compulsory	45	3
	General Elective (II) (Table 2)	2nd semester	Optional	45	3

Code	Course	Period of Study	Type	Hour	Credit
Year 4					
COMP490	Final Year Project	1st & 2nd semester	Compulsory	90	12
COMP411	Digital Image and Video Processing	1st semester	Compulsory	45	3
COMP412	Computer Security	1st semester	Compulsory	45	3
	Specialisation Course (Table 3 (d))	1st semester	Compulsory	45	3
	Major Elective (I) (Table 4)	1st semester	Optional	45	3
COMP421	Artificial Intelligence	2nd semester	Compulsory	45	3
COMP422	Ethics and Professional Issues in Computing	2nd semester	Compulsory	45	3
	Specialisation Course (Table 3 (e))	2nd semester	Compulsory	45	3
	Major Elective (II) (Table 4)	2nd semester	Optional	45	3

Table 2 – General Elective Course List

Code	Course	Type	Hour	Credit
MSEL101	Communication	Optional	45	3
MSEL102	Introduction to Psychology	Optional	45	3
MSEL103	Introduction to Sociology	Optional	45	3
MSEL104	Introduction to Economics	Optional	45	3
MSEL105	Introduction to Public Administration	Optional	45	3
MSEL106	Introduction to Marketing	Optional	45	3
MSEL107	Human Resources Management	Optional	45	3
MSEL108	Interpersonal Relations	Optional	45	3
MSEL109	Graphics Design	Optional	45	3
MSEL110	Accounting	Optional	45	3
MSEL111	Special Topics I	Optional	45	3
MSEL112	Special Topics II	Optional	45	3

Table 3 – Specialisation Course List

Each student must choose one of the following areas of specialisation.

Code	Course	Type	Hour	Credit
Enterprise Information Systems				
COMP315	(a) Performance Evaluation	Compulsory	45	3
COMP323	(b) Data Warehousing and Data Mining	Compulsory	45	3
MATH321	(c) Statistics II	Compulsory	45	3
COMP413	(d) Enterprise System and Application Development	Compulsory	45	3
COMP423	(e) Strategic Planning For Information Systems	Compulsory	45	3
Gaming Technology				
COMP316	(a) Introduction to Gaming Technology	Compulsory	45	3
COMP324	(b) Gaming Technology I	Compulsory	45	3
MATH322	(c) Mathematics For Gaming Technology	Compulsory	45	3
COMP414	(d) Gaming Technology II	Compulsory	45	3
COMP424	(e) Computer Game Design and Development	Compulsory	45	3
Computer Education				
EDUC311	(a) Introduction to Education	Compulsory	45	3
EDUC321	(b) Educational Psychology and Counselling	Compulsory	45	3
EDUC322	(c) Curriculum and Teaching Methods (IT in Secondary Education)	Compulsory	45	3
EDUC411	(d) Teaching Practice I (IT in Secondary Education)	Compulsory	45	3
EDUC421	(e) Teaching Practice II (IT in Secondary Education)	Compulsory	45	3

Table 4 – Major Elective Course List

Code	Course	Type	Hour	Credit
COMP401	Computer Aided Design	Optional	45	3
COMP402	Computer Forensics	Optional	45	3
COMP403	Database Administration and Programming	Optional	45	3
COMP404	IP Routing	Optional	45	3
COMP405	Mobile Computing and Wireless Networks	Optional	45	3
COMP406	Selected Topics I	Optional	45	3
COMP407	Selected Topics II	Optional	45	3
COMP408	Selected Topics III	Optional	45	3
COMP409	Selected Topics IV	Optional	45	3
COMP410	Internship	Optional	45	3

Table 5 – Pre-requisite Course List

Course Code and Title		Pre-requisite(s)	
Year 1			
COMP121	Computer Architecture	MATH111	Essential Computer Mathematics
COMP122	Data Structures and Algorithms	COMP112	Programming I
MATH121	Discrete Mathematics	MATH111	Essential Computer Mathematics
MENG121	English II	MENG111	English I
Year 2			
MATH211	Statistics I	MATH111	Essential Computer Mathematics
MENG211	English III	MENG121	English II
COMP224	Database Management Systems	COMP211	Database Design
MENG221	English IV	MENG211	English III
Year 3			
COMP312	Internet Programming II	COMP113	Web Technologies
MENG311	English V	MENG221	English IV
COMP321	Information System Implementation	COMP112 COMP211	Programming I Database Design
COMP323	Data Warehousing and Data Mining	COMP211	Database Design
COMP324	Gaming Technology I	COMP316	Introduction to Gaming Technology
MATH321	Statistics II	MATH211	Statistics I
MATH322	Mathematics for Gaming Technology	MATH211	Statistics I
MENG321	English VI	MENG311	English V
Year 4			
COMP413	Enterprise System and Application Development	COMP221	Object-oriented Technologies
COMP414	Gaming Technology II	COMP316	Introduction to Gaming Technology
COMP424	Computer Game Design and Development	COMP311	Multimedia Application Development
COMP490	Final Year Project	COMP223 COMP321	Software Engineering Information System Implementation
COMP403	Database Administration & Programming	COMP211	Database Design
COMP404	IP Routing	COMP214	Computer Networks
COMP405	Mobile Computing & Wireless Networks	COMP123	Data Communications

For courses with pre-requisites, students must pass the pre-requisites first before taking them.

Course Descriptions

Year 1

COMP111 Introduction to Computing (3 credits; 45 hours; Pre-requisite: nil)

This course will introduce: 1) fundamental electronic data processing concepts and associated terminologies; 2) the development of computers and computer applications; and 3) the impact of computers on society. Furthermore, peripherals of an actual computing system, CPU configuration, device interfaces and professional ethical issues in computing will be discussed.

COMP112 Programming I (3 credits; 45 hours; Pre-requisite: nil)

This course introduces the fundamentals of computer programming and problem solving, with a brief introduction to object-oriented programming and graphics programming. The course covers essential programming topics including the structure of programs, variables, primitive data types, expressions, statements, conditionals, loops, methods, arrays, classes and objects.

COMP113 Web Technologies (3 credits; 45 hours; Pre-requisite: nil)

This course provides a foundation for Web application development and focuses on authoring well-structured web pages. It covers current versions of the Web languages HTML and CSS. Students will have hands-on experience in web page authoring and layout in laboratories.

MATH111 Essential Computer Mathematics (3 credits; 45 hours; Pre-requisite: nil)

This course is an introduction to mathematical topics related to computer and information sciences. Topics include exponents and radicals, sequences and series, sets, functions, limits, continuity, matrices, binary number system, octal number system, hexadecimal number system, computer arithmetic, Boolean algebra and logic gates, and minimization of logic circuits.

MBUS100 Introduction to Business (3 credits; 45 hours; Pre-requisite: nil)

This course provides students with a basic understanding of the key concepts and disciplines of business and its environment, the business process as well as their aims, objectives and business strategies. On completion of the course, students should be able to demonstrate a sound, fundamental knowledge in different aspects of business with regard to its economic, environmental and social behaviors.

MENG111 English I (4 credits; 60 hours; Pre-requisite: nil)

This First Year Level course aims to develop students' general English language proficiency at the intermediate level. Substantial emphasis will be placed on the development of vocabulary and grammatical conventions, general and academic reading, and writing skills. Students' speaking and listening skills are developed through communicative practice activities. Communicative methodologies used are varied and include task-based learning in an attempt to develop the learners' interpersonal skills and activate their ability to use English in social, academic and professional situations.

COMP121 Computer Architecture (3 credits; 45 hours; Pre-requisite: MATH111)

This course is concerned with the study of the structures and behaviour of computers. It traces the evolution of computers and considers the functional organization of a computer. Major components of a computer are discussed in this course and an overview of microcomputer technologies is provided.

COMP122 Data Structures and Algorithms (3 credits; 45 hours; Pre-requisite: COMP112)

This course aims at providing an introduction to data structures and algorithms in Python. The course begins with an introduction to Python, followed by the fundamental abstract linear structures: lists, stacks and queues, with implementations. Next, the fundamentals of algorithm analysis are covered. Recursive algorithms are introduced with mathematical induction to show the elementary reasoning about algorithms. Trees are discussed with the applications in heaps and search trees. Various sorting algorithms are explained and analyzed. Finally, the course concludes with some advanced algorithms on graphs.

COMP123 Data Communications (3 credits; 45 hours; Pre-requisite: nil)

The aim of this course is to introduce the terminology and concepts of data communication systems design and operation, and to introduce the knowledge on different components in data communication systems. Topics include Data Transmission, Data Encoding, Data Link Control, Multiplexing, and LAN Technology.

MATH121 Discrete Mathematics (3 credits; 45 hours; Pre-requisite: MATH111)

This course is designed for computer studies programme students to enhance their training in logical thinking through a variety of mathematical topics. Topics include sets and logic, combinatorial mathematics, relations and functions, groups, and graphs.

MENG121 English II (4 credits; 60 hours; Pre-requisite: MENG111)

This is the second half of a year-long course in Year 1 that aims to develop students' general English language proficiency at the intermediate level. Substantial emphasis will be placed on the development of vocabulary and grammatical conventions, general and academic reading, and writing skills. Students' speaking and listening skills are developed through communicative practice activities. Communicative methodologies used are varied and include task-based learning in an attempt to develop the learners' interpersonal skills and activate their ability to use English in social, academic and professional situations.

Year 2

COMP211 Database Design (3 credits; 45 hours; Pre-requisite: nil)

This course is designed to provide students with an understanding of the principles of relational database design and the ability to apply these principles in the design and development of database projects. Principles of good design and modelling, how to structure queries using SQL will be the focus. For demonstration purpose, examples will be illustrated using MS Access.

COMP212 Programming II (3 credits; 45 hours; Pre-requisite: nil)

This course covers the principles of object-oriented programming using the Java language. Fundamental programming skills and methods related to object-oriented approaches are discussed. Topics include: objects and classes, encapsulation, inheritance and polymorphism, abstract classes and interfaces, generics and container classes, exception handling, and functional programming.

COMP213 Operating Systems (3 credits; 45 hours; Pre-requisite: nil)

This course aims to help students to understand important concepts and algorithms in operating systems. Major components discussed are process management, virtual memory, I/O and file systems. Topics include process description and control, process scheduling, threads, SMP, mutual exclusion and synchronization, partitioning, paging, segmentation, memory management algorithms, disk scheduling and file systems.

COMP214 Computer Networks (3 credits; 45 hours; Pre-requisite: nil)

This course introduces the technologies used in modern computer networking from the top to the bottom. The course begins at the application layer and works its way down toward the link layer of the Internet protocol stack. Topics include network services and applications, layered Internet architecture and protocols, congestion control, routing and switching.

MATH211 Statistics I (3 credits; 45 hours; Pre-requisite: MATH111)

This is an introductory statistics course which aims to provide a broad review of the use of statistical techniques. This course will cover basic statistical theory, descriptive statistics and probability. Presentation of probability distributions, estimation, correlation and regression are also dealt with. This course is a preparation for more advanced work.

MENG211 English III (4 credits; 60 hours; Pre-requisite: MENG121)

This is the first half of a year-long course in Year 2 that aims to further develop students' English language skills within an academic framework at the intermediate level. All four macro skills are covered through a topical syllabus in this course, although substantial emphasis will be placed on the review of grammatical conventions and the development of vocabulary, general and academic reading, conversational and writing skills. Through communicative practice activities, students will learn how to cooperate and communicate with others in English. They will also develop creativity, critical thinking, interpersonal skills and problem-solving ability. Furthermore, they will improve their ability to use English in social, academic and professional situations.

COMP221 Object Oriented Technologies (3 credits; 45 hours; Pre-requisite: nil)

This course aims to give students a comprehensive exposure to object-oriented software development design and methodologies. Using a practical approach, this course provides extensive practice in basic concepts of object-oriented programming (OOP). The presentation about object-orientation design (OOD) principles will be followed by the introduction of a concise subset of the Unified Modelling Language (UML) used to illustrate the Object-oriented analysis (OOA) and OOD process. Topics include encapsulation, inheritance, and polymorphism, object-oriented design principles, UML diagrams, and design pattern.

COMP222 Internet Programming I (3 credits; 45 hours; Pre-requisite: nil)

This course is an introduction to server-side web programming. Students will be taught the most important concepts for building web applications through lectures and hands-on programming experience, which will enable them to design and program web-based software systems. The course provides the principles of web application development, and arms students with the skills for developing web oriented applications. Topics include web request handling, state management, and database manipulation. For demonstration purpose, the course focuses on building web applications with Django.

COMP223 Software Engineering (3 credits; 45 hours; Pre-requisite: nil)

This course introduces the concepts of software development. Emphasis will be put on understanding the processes, techniques and methods used to develop application software. Besides, students are exposed to various software development approaches. Upon completion, students will be able to understand the major software development methodologies and techniques, appreciate their relative merits and their limitations.

COMP224 Database Management Systems (3 credits; 45 hours; Pre-requisite: COMP211)

This course introduces the advanced topics in the design and management of database systems. Topics include query processing, relational algebra, transaction management, concurrency control, database recovery, distributed database management systems, privacy and security. Data definition language and the features of Oracle databases will also be introduced in the course.

COMP225 Network and System Administration (3 credits; 45 hours; Pre-requisite: nil)

Network and System Administration is an increasingly complex and essential field in the information technology industry. This course aims at building up students' knowledge in administering network systems. Major topics covered in this course are Linux environment, system administration, network services, Internet services, system maintenance, and system security and problem solving.

MENG221 English IV (4 credits; 60 hours; Pre-requisite: MENG211)

This is the second half of a year-long course in Year 2 that aims to further develop students' English language skills within an academic framework at the upper intermediate level. All four macro skills are covered through a topical syllabus in this course, although substantial emphasis will be placed on the review of grammatical conventions and the development of vocabulary, general and academic reading, conversational and writing skills. Through communicative practice activities, students will learn how to cooperate and communicate with others in English. They will also develop creativity, critical thinking, interpersonal skills and problem-solving ability. Furthermore, they will improve their ability to use English in social, academic and professional situations.

Year 3

COMP311 Multimedia Application Development (3 credits; 45 hours; Pre-requisite: nil)

The course introduces the different elements and the key perspectives in digital multimedia processing to students. It includes the basic concepts and the fundamental theories of text, sound, image, video, etc. It also discusses the development of practical tools in processing these multimedia elements. The course equips the students with the necessary background in understanding, planning, developing and deploying multimedia applications.

COMP312 Internet Programming II (3 credits; 45 hours; Pre-requisite: COMP113)

Recent advances in Web standards and their wide support by mainstream browsers have enabled development of sophisticated Web applications that are accessible on desktop and mobile devices. This course examines important concepts and technologies required to develop state-of-the-art Web applications. Topics include the architecture and protocol of the Web, the JavaScript language, development of interactive user interfaces and scalable backend of Web applications, and the design and implementation of Web APIs.

COMP313 Project Management (3 credits; 45 hours; Pre-requisite: nil)

The objective of this course is to study the concepts and issues related to the management of information technology projects. Topics include introduction to projects and their management, project planning and development processes, project selection methods, work breakdown structures, network diagrams & critical path analysis, resource estimation, and project control, project organization structures, motivation theory and team building.

COMP314 Human Factors and User Interfaces (3 credits; 45 hours; Pre-requisite: nil)

This course applies the basic principles of human-computer interaction to the design of computer interfaces. It also looks at the analysis of interface design and system integration problems. Comparison of standard graphical user interfaces (GUI) and the application of guidelines for windows, menus, and other dialogue techniques is dealt with. Students will evaluate the usability of the program interfaces and compare interface design methodologies.

MENG311 English V (4 credits; 60 hours; Pre-requisite: MENG221)

This is the first half of a year-long course in Year 3 that aims to develop students' English language skills within an academic and technical framework at the upper intermediate level. All four macro skills (reading, listening, speaking, and writing) are covered in this course. Students will gain knowledge of academic and technical writing skills and be able to cultivate their interest and ability of self-sustained learning in English by reading and listening to IT related news.

COMP321 Information System Implementation (3 credits; 45 hours; Pre-requisites: COMP112, COMP211)

This course aims to develop students' abilities to apply their information systems development skills and to work in a group to develop an application project and produce written reports. The students should focus on demonstrating sound skills in integrating systems analysis, systems design, problem solving, implementation and testing to complete the process of information system implementation. The course also prepares the students for taking the Final Year Project.

COMP322 Introduction to E-Business (3 credits; 45 hours; Pre-requisite: nil)

The goal of this course is to develop an understanding of the underlying principles of E-Business. This course will expose the students to the basic principles of the technology of e-commerce, and to provide students with the knowledge of various modern e-commerce related concepts and terminologies, including topics on web technologies, security issues, payment options, marketing issues, legal issues, etc.

MENG321 English VI (4 credits; 60 hours; Pre-requisite: MENG311)

This is the second half of a year-long course in Year 3 that aims to develop students' English language skills within an academic and technical framework at the upper intermediate level. All four macro skills (reading, listening, speaking, and writing) are covered in this course. Students will gain knowledge of academic and technical writing skills, and will cultivate their interest and ability of self-sustained learning in English by reading and listening to Computing-related and other topics.

Year 4

COMP490 Final Year Project (12 credits; 90 hours; Pre-requisites: COMP223, COMP321)

The final year project (FYP) aims to allow students to tackle a real problem and to complete the specification / design / implementation / documentation / testing / evaluation processes. Students are required to develop software projects and / or carry out research project in a relevant area. The FYP is an individual project. The students are required to explore an area of information technologies in considerable depth, demonstrating sound problem solving and analytical skills.

COMP411 Digital Image and Video Processing (3 credits; 45 hours; Pre-requisite: nil)

The course focuses on the investigation of practical digital image and video processing techniques. It aims to equip the students with the background of developing image and video processing tools and applications. The topics include: 1) the fundamental theories and mathematical models in digital image and video processing; 2) the practical algorithms in digital image and video processing; 3) the relevant mainstream standards in engineering and applications; 4) the development of image and video processing applications in practice.

COMP412 Computer Security (3 credits; 45 hours; Pre-requisite: nil)

This course explains the theoretical foundations, and current state, of modern cryptographic algorithms and trusted computers used to provide various computer security services. Cryptographic encryption algorithms, such as DES, RSA, and Diffie-Hellmen, will be discussed. Topics covered include classical ciphers, modern private key block ciphers, public key ciphers, authentication and integrity, key management and modern application systems.

COMP421 Artificial Intelligence (3 credits; 45 hours; Pre-requisite: nil)

The course introduces both the theoretical and the practical aspects of artificial intelligence (AI), including the fundamental mathematical models and the state-of-the-art tools for AI problem solving. The topics include mathematical logic, searching heuristics, Bayesian inference, machine learning and prolog programming language. These topics cover a wide range of key topics in modern AI, from deterministic reasoning to reasoning with uncertainty, from rule-based systems to learning-based systems, etc.

COMP422 Ethics and Professional Issues in Computing (3 credits; 45 hours; Pre-requisite: nil)

This course provides an overview of ethical theories and problems encountered by computer professionals in today's environment. Stimulating issues such as social networking, government surveillance, and intellectual property from different views are discussed. The discussion topics in this course challenge students to think critically and draw their own conclusions, which ultimately prepare them to become responsible, ethical users of future technologies.

Specialization Courses: Enterprise Information System

COMP315 Performance Evaluation (3 credits; 45 hours; Pre-requisite: nil)

The aim of this course is to provide students with the main concepts and techniques needed to study the performance of computer systems, plan the capacity of computer systems, predict their future performance under different configurations, and design new applications that meet performance requirements. The course is mainly based on the use of analytic queuing network models of computer systems.

COMP323 Data Warehousing and Data Mining (3 credits; 45 hours; Pre-requisite: COMP211)

This course discusses the principles and practices of data warehousing and provides students with knowledge in the design, implementation and utilization of data warehouses in an enterprise. In addition, this course also examines the role of data mining in data warehouses.

MATH321 Statistics II (3 credits; 45 hours; Pre-requisite: MATH211)

This course continues to explore statistical inference in greater depth. Topics cover hypothesis testing, analysis of variance (ANOVA), chi-square tests, multiple correlation and regression, and sampling theory. The application of methods to the analysis of data using the statistical software SPSS will be emphasised.

COMP413 Enterprise System and Application Development (3 credits; 45 hours; Pre-requisite: COMP221)

Enterprise systems will always provide high quality of services on automating the key business processes and integrating the legacy systems within an organization. This course provides the knowledge required to build the enterprise systems and accordingly to develop applications in Java. It will focus on the current enterprise system and application development practices such as server-side resource management, high performance database manipulation, software design pattern, framework implementation, and system security.

COMP423 Strategic Planning For Information Systems (3 credits; 45 hours; Pre-requisite: nil)

This course aims to provide students with an overall understanding of the strategic role of information systems, and the strategic planning and management of them within a modern organization. Within this scope the emphasis is on student knowledge of the range of established strategic analysis and planning tools, and how they can be applied.

Specialization Courses: Gaming Technology

COMP316 Introduction to Gaming Technology (3 credits; 45 hours; Pre-requisite: nil)

This course covers the general knowledge of the current technologies applied in the gaming industry. The purpose of this course is to enable students to gain a full picture of the overall gaming environment worldwide with regard to technologies employed and to develop an understanding of the underpinning concepts behind the technologies utilised now and in future. In particular, the students will be introduced to the historical background of gaming, classification of the games, the compliance of slot machines and other peripherals used in table games.

COMP324 Gaming Technology I (3 credits; 45 hours; Pre-requisite: COMP316)

This course explains the highly regulated electronic gaming machines and the main gaming information systems from a technical prospective. Gaming information systems such as progressives, accounting system, bonusing system and configuration system will be discussed. Topics covered include electronic gaming machines, design and architecture of the gaming floor network and systems, and testing, standards and certification.

MATH322 Mathematics For Gaming Technology (3 credits; 45 hours; Pre-requisite: MATH211)

This course introduces gaming mathematics, also referred as the mathematics of gambling. Topics cover probability theory basics, Bayes' Theorem, discrete random variables and probability distribution, and combinatorics. A thorough examination of odds versus probability, learning how to convert from probability to odds or vice-versa, and calculating the expectation and house edge. This course details the history, the rules, the different bets available, the payoffs, the odds, the winning strategies and the etiquette for classic casino games like roulette, blackjack, craps, baccarat, and slot machines. This course also explores different betting systems.

COMP414 Gaming Technology II (3 credits; 45 hours; Pre-requisite: COMP316)

A gaming floor consists of numerous slot machines (also known as EGMs) and various slot information systems. These systems implement important functions including monitoring, accounting, progressives, promotion, player tracking and cashless gaming. This course examines the design and implementation of slot information systems by studying an emerging standard known as G2S in the gaming industry.

COMP424 Computer Game Design and Development (3 credits; 45 hours; Pre-requisite: COMP311)

This course provides an introduction to the theory and practice of game design and development. The course covers several major areas: the theories and concepts of game design, the architecture of a game engine, the rendering engine, 3D pipeline programming and physics engine.

Specialization Courses: Computer Education

EDUC311 Introduction to Education (3 credits; 45 hours; Pre-requisite: nil)

This course is an introductory and compulsory course for students who are considering teaching as a profession and who are seeking a better understanding about the complexity and importance of education. This course will provide students with theories in the field of education, focus primarily on the nature and importance of the teaching profession, and discuss the current challenges and requirements for the profession. This course will lay a foundation for learning other professional educational courses.

EDUC321 Educational Psychology and Counselling (3 credits; 45 hours; Pre-requisite: nil)

Educational psychology and counselling is an introductory course designed to be useful to students who plan to explore the teaching profession. This course intends to provide an overview of developmental, learning, and motivational theories with a focus on their application to the field of education. This course also focuses on understanding the theories and processes of effective counselling and wellness programs for individual students and groups of students.

EDUC322 Curriculum and Teaching Methods (IT in Secondary Education) (3 credits; 45 hours; Pre-requisite: nil)

Curriculum and teaching methods are essential for student success in achieving educational goals. This course intends to develop student's understanding and basic skills in analysing, reflecting and applying curriculum and teaching principles particularly appropriate to information technology. Topics relating to curriculum theory, curriculum development processes, and a plenary discussion on the types of instructional media and the principles involved in using each media will be covered.

EDUC411 Teaching Practice I (IT in Secondary Education) (3 credits; 45 hours; Pre-requisite: nil)

The aim of this course is to help Student Teachers develop their teaching skills in Information Technology and prepare them for a successful teaching experience. This will be achieved through engagement in pedagogical issues and the application of these practical skills. The course requires significant personal involvement and time. Student Teachers will observe school classes, design and engage in classroom teaching of Information Technology, and also do reflective writing on their observation and teaching.

EDUC421 Teaching Practice II (IT in Secondary Education) (3 credits; 45 hours; Pre-requisite: nil)

This course is a continuation of the skills learnt in Teaching Practice I and attempts to deepen the different perspectives of the teaching of Information Technology. Student Teachers repeat the arrangement for Teaching Practice I but in a different grade and/or school. The aim of this course is to help Student Teachers further improve their teaching skills in Information Technology based on the reflective writings on their observation and teaching from Teaching Practice I. Student Teachers will continue to observe school classes, design and engage in classroom teaching, and also do reflective writing on their observation and teaching.

General Elective Courses

MSEL101 Communication (3 credits; 45 hours; Pre-requisite: nil)

This course provides the students with a foundation of the study of communication and introduces students to communications theories and contemporary issues in intrapersonal, interpersonal, organizational and business communication. It also provides opportunities for students to strengthen their communications skills in their day-to-day lives.

MSEL102 Introduction to Psychology (3 credits; 45 hours; Pre-requisite: nil)

The course is designed to introduce students to the study of psychology. It is intended to provide broad coverage of the field by presenting basic theories, research, and applied use of psychology. It will give students a background from which to either pursue more advanced psychology courses, or to retain the information as a basic knowledge of psychology in general. Areas that will be covered include: research methods, human development, consciousness, learning, intelligence, motivation, personality, health psychology, psychological disorders, social psychology, and psychology of gaming. These areas will be approached from both theoretical and applied perspectives.

MSEL103 Introduction to Sociology (3 credits; 45 hours; Pre-requisite: nil)

This course attempts to introduce to students the basic concepts in the discipline of sociology. This will include the study of the major sociological theories; procedures and objectives of sociological research; the sociological perspective used to analyze self and society in general. This course intends to prepare computing program students the interpersonal skills necessary in their personal and work life.

MSEL104 Introduction to Economics (3 credits; 45 hours; Pre-requisite: nil)

This course aims to provide a fundamental knowledge of Economics to students who did not study it at a tertiary level. It focuses on how the society handles resource scarcity issue. Key topics include demand and supply, consumption, firm behaviour, GDP, unemployment, inflation, and short-run economic fluctuations.

MSEL105 Introduction to Public Administration (3 credits; 45 hours; Pre-requisite: nil)

This course provides a solid introduction to the fundamental areas of public administration, blending theory with practice in a way that helps students apply theoretical models to the real world. The complexities and breadth of the field and discipline of public administration are thoroughly covered, including the history of the discipline, bureaucracy, organizational theory and behaviour, public budgeting, personnel administration, public policy, and ethics.

MSEL106 Introduction to Marketing (3 credits; 45 hours; Pre-requisite: nil)

This course aims at giving students the fundamental theories of marketing. Topics include dimensions of marketing, marketing mix, the origins and functions of marketing, marketing management, consumer behaviour, market segmentation and positioning, and international marketing.

MSEL107 Human Resources Management (3 credits; 45 hours; Pre-requisite: nil)

This course covers the study of recruitment, selection and placement, job analysis, job description, job evaluation, compensation and appraisal plans, employment benefit programs, training and educational programs, labour relations, personnel planning and evaluation, and related theories of individual and group motivation and behaviour.

MSEL108 Interpersonal Relations (3 credits; 45 hours; Pre-requisite: nil)

This course provides cognitive awareness of interpersonal relations and communications. Most interpersonal and intergroup relations are initiated and maintained through interactions among individuals. To foster more effective learning of concepts in interpersonal and intergroup communication, a major proportion of the lectures in this course will take the form of role-plays, case studies, structured activities, group discussions, and group assignments. In such a setting, different real life situations are conscientiously simulated to develop insights, knowledge, and skills in interpersonal and intergroup communication, especially in social and emotional competences.

MSEL109 Graphics Design (3 credits; 45 hours; Pre-requisite: nil)

This course is a basic introduction to visual vocabulary. Students are guided to learn and apply basic graphic elements such as point, line and plane according to the principles of two-dimensional design. By analysing and exploring the organization of those elements, in conjunction with colour, students can express visually abstract ideas such as movement and sound.

MSEL110 Accounting (3 credits; 45 hours; Pre-requisite: nil)

This introductory course in accounting provides students with an understanding of: the principles of accrual accounting; financial statement analysis; double-entry systems; the accounting cycle; and basic concepts of managerial accounting.

MSEL111 Special Topics I (Physical Education) (3 credits; 45 hours; Pre-requisite: nil)

The aims of the course are (1) to familiarize the students with major concepts of fitness; (2) to improve their fitness; and (3) to choose the sports suitable for their physique. In addition to the popular physical exercises, students will learn the basic skills of the most common sports that they are interested in. The course will also provide the students with some basic knowledge of physical education (fitness, human energy system, injury prevention and treatment in exercise etc.).

MSEL112 Special Topics II (Musicals and Films Appreciation) (3 credits; 45 hours; Pre-requisite: nil)

This course is mainly about the introduction to art appreciation, including the fundamental theories of films, musicals and dancing. Also, it includes the appreciation of different types of films and musicals. The film styles, the script structures, as well as the common comments of different films will be discussed. This course will enhance the culture lives of undergraduate students, as improve their art appreciation levels on films and musicals.

Major Elective Courses

COMP401 Computer Aided Design (3 credits; 45 hours; Pre-requisite: nil)

This course is designed to provide students an understanding of the application of a wide range of the core AutoCAD commands and computer-aided-drafting concepts to draw, design, and draft. Emphasis is placed on efficient and accurate drawing techniques incorporating the features, commands, and techniques for designing, editing, and printing 2D-3D production drawings. For successful completion of this course, a comprehensive project requiring the use and execution of CAD will be utilised.

COMP402 Computer Forensics (3 credits; 45 hours; Pre-requisite: nil)

Computer forensics is simply the application of computer investigation and analysis techniques in the interests of determining potential legal evidence. Evidence might be sought in a wide range of computer crime or misuse, including but not limited to theft of trade secrets, theft of or destruction of intellectual property, and fraud. This course enables students to draw on an array of methods for discovering data that resides in a computer system, or recovering deleted, encrypted, or damaged file information. This course will also provide students the necessary skills to identify an intruder's footprints and to properly gather the necessary evidence.

COMP403 Database Administration and Programming (3 credits; 45 hours; Pre-requisite: COMP211)

This course aims to provide students with an overall understanding of how to develop, implement and deploy database applications using development tools. Students will also gain a conceptual understanding of the Oracle database architecture and how the architectural structures work and interact with one another. Students will learn how to create an operational database and properly manage the various structures in an effective and efficient manner in order to have a well-designed and operational database.

COMP404 IP Routing (3 credits; 45 hours; Pre-requisite: COMP214)

This course delivers the concept of IP routing and the associated routing protocols that can be utilized to route within and between autonomous systems. Common routing protocols such as RIP, OSPF, and IGRP will be discussed. Switching network will also be discussed. Topics covered include network devices, router components, router configuration, IOS images, TCP/IP, routing protocols, network troubleshooting, switching, and VLAN. The course will provide hands-on labs using real networking equipment.

COMP405 Mobile Computing and Wireless Networks (3 credits; 45 hours; Pre-requisite: COMP123)

This course covers the fundamental principles of mobile computing and wireless networks. Topics include wireless communication systems, radio propagation, wireless media access, mobile IP, mobile applications and services, wireless LANs, wireless network security and next generation of wireless networks.

COMP406 Selected Topics I (Calculus) (3 credits; 45 hours; Pre-requisite: nil)

This course introduces the basic concepts of differential and integral calculus. Topics include limits, differentiation, applications of differentiation to practical problems, basic techniques of integration, and applications of integral calculus.

COMP407 Selected Topics II (Advanced Networking) (3 credits; 45 hours; Pre-requisite: nil)

This course covers advanced topics in networking, with emphasis on exterior gateway routing protocols and new generation IP. With these topics, students will have a full picture on the routing process taking place in the Internet. Topics include the WAN Technologies, BGP operations, IPv6 basic, and IPv6 address auto-configuration. In this course, students will have chance to do hands-on experiments to understand the concepts and to evaluate the features of the protocols.

COMP408 Selected Topics III (Information Systems Auditing) (3 credits; 45 hours; Pre-requisite: nil)

This course provides a common body of knowledge for information systems auditing. This course covers the following 5 domains:

1. The Process of Auditing Information Systems
2. Governance and Management of IT
3. Information Systems Acquisition, Development and Implementation
4. Information Systems Operations, Maintenance and Support
5. Protection of Information Assets

Information technology case studies are used to illustrate IS auditing process, practices and management.

COMP409 Selected Topics IV (Linear Algebra) (3 credits; 45 hours; Pre-requisite: nil)

This course introduces to students the basic concepts and elementary skills in linear algebra. Topics include simultaneous linear equations, matrices and determinants, *n*-dimensional Euclidean space, eigenvalues and eigenvectors, general vector space, linear dependent and independent set of vectors, rank and nullity.

COMP410 Internship (3 credits; 45 hours; Pre-requisite: nil)

This course is to provide practical experience in a professional setting for students. Students will have an opportunity to exercise their IT knowledge and the skills they have acquired in a supervised environment, demonstrating competence in obtaining employment relevant to the academic learning through activities such as creating a CV, researching the market/industry, networking, making job applications and attending interviews. The projected outcomes are: an authentic work experience, the credential of having completed a professional internship, and the establishment of a personal network of professional associates valuable for career advancement.

SECTION 4 TEACHING & LEARNING

The Computing Programme has a low student-staff ratio of 9:1, which fosters a close relationship between students and lecturers. Students may contact lecturers in person at anytime during office hours (six hours per week), or through email. For many courses, a soft copy of lecture notes and supplementary material are available in course homepages and course folders in the campus network. Recommended book lists are provided at the beginning of each semester (see Appendix A1 for an example).

Basically, all courses (except for *Information System Implementation*, *Final Year Project*, *Internship* and *Teaching Practice I & II*) are lecture-based and must fulfil the number of contact hours per week assigned to those courses. Many of the courses offer tutorial and laboratory practice as specified in the course syllabi. As for the final year projects, students are expected to complete an implementation-based and/or research-based project with the guidance, assistance and monitoring of the student project supervisors.

The teaching methods applied in most of the courses are face-to-face lectures and laboratory work. Generally, the credit hours of each course equal the number of contact hours per week, which comprises both lectures and laboratory work.

Students with an overall score of less than 35 in the coursework must take the re-sit examination even if the overall score for the course is 50 or above. Students with a score of less than 35 in the final examination must take the re-sit examination even if the overall score for the course is 50 or above. Students with an overall final grade of less than 35 are NOT allowed to take the re-sit examination.

The medium of instruction is English. Students are expected to attend lectures and tutorials and must attain 70% attendance in order to sit for their final examinations.

The main teaching methods include the following:

Face-to-face Lectures

In most courses, lecturers deliver pedagogical material to students in a logical and organized manner in the classroom. Students obtain concepts and knowledge of a specific course by attending the lectures, and learning is reinforced by assignments, laboratory practice and projects.

The Institute's policy on small class sizes of 20-30 facilitates an interactive learning experience in the classroom. Students are often challenged to solve problems, and encouraged to criticize information they are exposed to, both inside and outside the classroom. These approaches increase students' involvement and attentiveness.

Many lecturers use *Microsoft PowerPoint* to deliver lectures, while some lecturers may use audio/video material. The required equipment (projector and computers) is available in every classroom and computer laboratory.

Laboratory Work

Courses related to programming, systems operation, multimedia authoring, and network administration generally involve a larger portion of hands-on practice than other courses. This is achieved by offering laboratory work in some general-purpose teaching computer laboratories and a special-purpose "hardware laboratory".

The Institute provides sufficient general-purpose teaching computer laboratories that offer PCs with Windows platforms and Apple Computer. System development tools (including compilers, database management system and project management software) and office software are accessible in the computer laboratories where teaching takes place. For network and system administration, the special-purpose "hardware laboratory" provides routers and switches for hands-on practice.

Group Projects

Several advanced level courses require students to work on course projects and include *Information System Implementation*, *Software Engineering*, *Introduction to Business*, *Database Design*, *DBMS*, *Data Warehousing and Data Mining*, *Database Administration and Programming*. In addition to extended problem-solving in specific courses, students are also involved in group work early in their studies.

The *Final Year Project* course takes a student-centered learning approach. Students participate in problem solving activities involving a different combination of application development, technical challenge and research problems. Project supervisors facilitate the learning experience by providing means for accessing information, monitoring, and giving advice to the students.

SECTION 5 STUDENT SUPPORT

Academic Support

At the Institute level, the Registry, the Student Affairs Office, the Library, and Computer Service Centre provide services that support students in their attainment of success.

In particular, the Registry and the Student Affairs Office cater to the many needs of students, from coping with their studies, to their need for personal, social and career development. Admissions, registration and enrolment, deferred study, withdrawal, transcripts and testimonials, student insurance, student counselling, financial aid and scholarships, student hostels, and recruitment seminars are all handled by the Registry and the Student Affairs Office. The Registry also serves as the central hub for disseminating information, and regulations and guidelines to students, including the academic calendar, class timetables, examination and supplementary examination timetables, booklists, job opportunities, academic regulations, subject equivalence, class attendance, tuition fee and payment methods etc. Most of this information is available online, with some services offered online as well. For instance, students may enrol for courses online, and also view their grades and unofficial transcripts.

Student Counsellors

http://www.ipm.edu.mo/student_corner/en/student_counseling.php

The counselling service is intended to assist students in adapting to their studies in the Institute, assist them to effectively manage their studies or prevent personal difficulties and enrich their campus life. The Student Counsellors provide counselling services to students on an individual basis and organise various types of activities. The Student Counsellors visit hostel students and non-resident students residing in the city on a regular basis.

Online Services for Students

http://www.ipm.edu.mo/student_corner/en/online_services_for_students.php

- Student Information Web (SIWeb)
- Class Timetable Enquiry
- Examination Timetable Enquiry
- Re-sit Examination Timetable Enquiry
- Class Cancellations & Make-up Classes Timetable Enquiry
- Student Payment Status Enquiry
- Canvas LMS – e-Learning Platform
- Requisition for Various Documentation

IT Facilities

The Institute is keen to equip the campus with an efficient and effective IT infrastructure and computing environment and provides students especially those in Computing Programme the conditions, they may expect to find in their future work place, using the Project Lab, Hardware Lab & self-study laboratory and other facilities.

On the one hand, the 20-seats Project Lab (A216) providing high performance computers is dedicated to students in Computing Programme especially for their final year projects. Besides Intel based PCs and Apple computers, numerous mobile devices, including PDAs, smartphones, smartcard readers, finger-print readers, and GPS receivers, are available for use in selected projects.

On the other hand, the 33 seats Hardware lab allows students to have hand-on experience with CISCO networking equipment, and other hardware devices. The detailed configurations of the laboratories can be found in http://csc.ipm.edu.mo/index.php/computer-labs-intro.

A dedicated computer laboratory, at A204, with teaching assistant is setup to provide learning support to 1st and 2nd year students in their programming skills. Moreover, self-learning facilities can be found in the main campus. The 50 seats self-study Computer Lab A213, equipped with Intel computers, Apple Computers, scanners and self-service "*MACAUpass*" color copiers and printers, is for students and registered public access only. In the lab, some lab assistants are hired to provide assistance in using the computing facilities and enforce the computer laboratory usage regulations. While working in the laboratory, the computer laboratory assistants are required to wear an identification badge with photo and official chop from the Computer Service Centre for

identification. The contact phone number is 85996147. In addition, the 17 seats self-learning area and 31 seats Information Literacy Lab are setup in the Library in Wu Chi Building.

Basically, at least one of the computer labs opens 24 hours in normal days and until midnight in the evening of public holidays. The opening hours in the public holidays during Summer and Winter vacation are from 10am till 10pm. To access the computers in the labs, please login with your NetID and NetPassword as instructed in http://csc.ipm.edu.mo/index.php/accounts-a-passwords/netid-computer-account.

On the main campus, our IT facilities include a significant number of networked computers providing access to online services, Email and the Internet through 19 computer laboratories and self-learning facilities and the campus wireless network as well. The latter network on the main campus supports IEEE 802.11g standard.

In addition, Cyber cafés and information kiosks are available at a number of campus locations offering latest campus news and Internet access for students and visitors. Broadband Internet connections are provided in our student hostels to allow students to connect their computers to access the Internet within their rooms. *Canvas* is in use in the Institute offering our teachers and students an online teaching and learning management platform.

A helpdesk counter of the Computer Service Centre is located at A201 on the main campus to provide IT support services to all staff and students.

Student Union

http://aeipm.ipm.edu.mo/

The Macao Polytechnic Institute Student Union was established on 5 August 1993. Currently the Student Union consists of 7 subsidiaries and 14 sports clubs such as the dragon boat team, the fencing team, the boxing clubs and the judo clubs. The mission of the Union is to protect the interests of students and to cultivate their team spirit through activities.

The Student Union organises different activities such as orientation parties, Halloween Festival, Christmas parties and a charity ball. To help students make contribution to the community, it organises and encourages students to participate in the Walk for a Million and the annual Bazaar and to serve as volunteer social workers. The Student Union is also responsible for organizing students to join the annual sports competitions for tertiary education organizations. The Student Union office is situated on the main campus of the Macao Polytechnic Institute.

Scholarships and Grants

http://www.ipm.edu.mo/student_corner/en/overview.php

In order to encourage Macao's best students to enrol on the degree programmes offered by MPI, and to reward our current and graduate honours students, MPI and other enterprising organisations co-sponsor a number of different types of scholarships and grants in the form of reduced annual tuition fees and the granting of cash awards. Over one hundred students benefit from these scholarships annually.

Moreover, to attract the registration of the best students of the Mainland of China, MPI also offers three types of scholarship, as follows:

- full scholarships (including tuition fees, hostel fees, and monthly living subsidy);
- cash scholarships of MOP30,000.00;
- annual tuition fees waived.

MPI also provides a local student grants scheme to help those experiencing financial difficulties to enrol on its degree programmes offered by MPI, in order to enable equal opportunities for eligible students to enrol and enrich their individual capabilities so as to serve society in the future. Therefore, MPI reserves more than one million patacas for such grants annually. According to previous data, some of the beneficiates may receive up to 80% annual tuition fee reduction. Currently more than 600 students have benefited from such grants with some, having successfully graduated, already serving our community.

Furthermore, to encourage our students to continue their studies, MPI also offers Masters degree programme scholarships for local students to study in well-known universities, both abroad and on the Mainland.

SECTION 6 MAJOR QUALITY ASSURANCE MECHANISM AND STUDENT FEEDBACK SYSTEM

In guaranteeing that the assessment and examination procedure is up to standard, the Subject Leaders of the Assessment Standards Task Group of the Quality Assurance Committee (see Figure 4) are responsible for vetting the final examination question papers and marking schemes before the final examination, and also moderating the grading of student scripts after the final examination. The Internal Examiner for each course is responsible for grading students' continuous and final examinations. The External Examiner vets examination papers, moderates examination scripts, and attends Programme Examination Board meetings at the end of each year. Grades are previewed and double-marked by the Assessment Standards Task Group, forwarded to the Programme Examination Board, which are then submitted to the Pedagogical Scientific Committee (PSC), the Examination Board at the School Level. Students are given the right to review their grades. In case of any dispute between a student and the teacher, the Assessment Standards Task Group will try to resolve the issue. If it is not resolved, the issue will be brought to the School level.

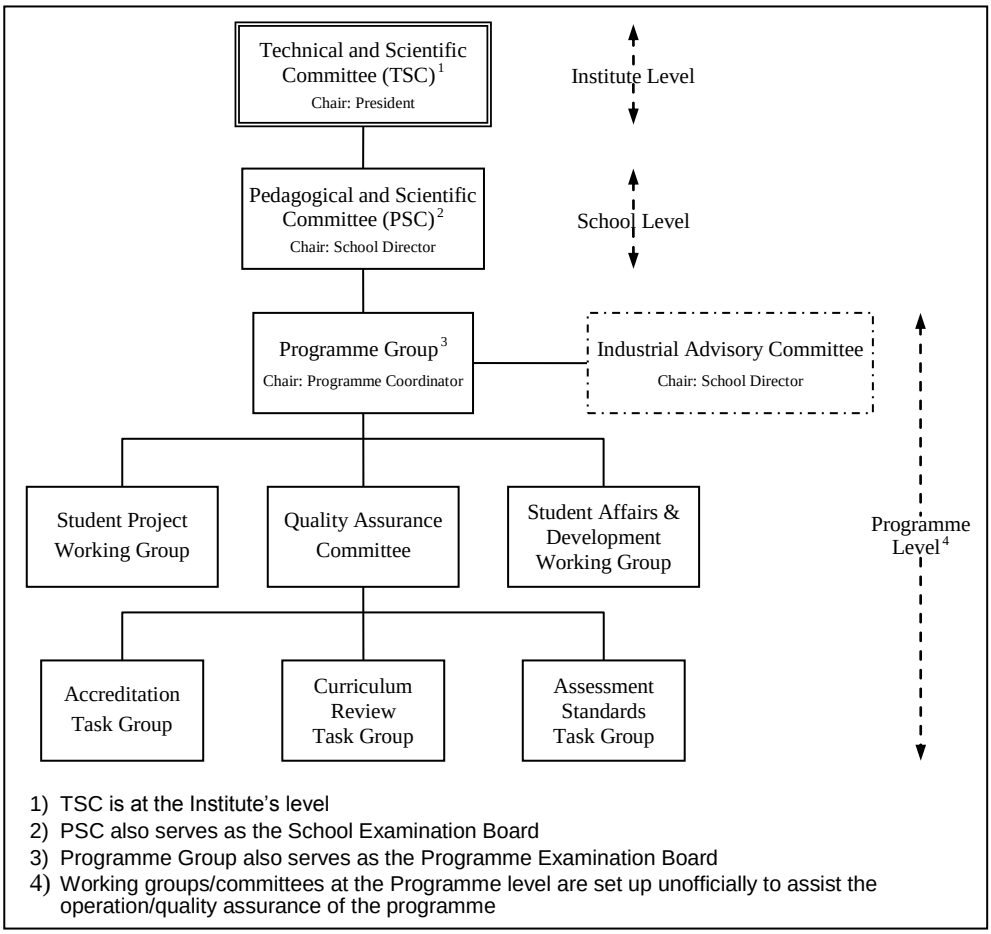


Figure 4 Academic Structure of MPI

Student Feedback

The Institute gathers feedback from students by a variety of means. These include informal staff/student discussions, School Dialogue, Dialog with the Institute, student feedback questionnaires at course level, and engagement survey at the programme level.

Channels for student feedback are maintained and developed at the programme-level, being led by the Programme Coordinator, with the support of the School Director. At the School level, the School Dialog is a forum where student representatives can raise their problems and concerns. At the Programme level, students are encouraged to talk to their Year Tutors to discuss their personal as well as academic problems, which will be directed to the Student Affairs Leader of the Programme's Student Affairs and Development Working Group. The Programme Coordinator may try to solve internal problems with the assistance of the Programme Team. If beyond the jurisdiction of the Programme level, problems will be directed to the School Dialog Meeting. If beyond the jurisdiction of the School level, the problems will be directed to the Institute level. The School provides counsellors for students who want to resolve their problems further.

SECTION 7 GENERAL INFORMATION AND STUDENT ENQUIRIES

Programme Matters

Title and Name	Tel. No.	Email	Office
Programme Coordinator Dr. Lam Chan Tong 林燦堂博士	85993342	ctlam@ipm.edu.mo	M537
Assistant Programme Coordinator Dr. Ng Koon Kei, Benjamin 吳冠祺博士	85996431	bng@ipm.edu.mo	A313
Assistant Programme Coordinator Dr. Liu Yue 劉玥博士	85996433	yue.liu@ipm.edu.mo	A313

List of Teachers

Teacher's Name	Tel. No.	Email	Office
Tse Tan Sim, Rita 謝丹嬋	85993280	ritatse@ipm.edu.mo	M512
Chan Mei Pou, Calana 陳美寶	85993277	calanachan@ipm.edu.mo	M511
Cheong Ngai, Phillip 張毅	85993333	ncheong@ipm.edu.mo	M520
Choi Ka Cheng, Rebecca 蔡嘉靜	85996491	rebeccachoi@ipm.edu.mo	A202a
Ho Ka Chong, Wilson 何家忠	---	kcho@ipm.edu.mo	A216
Ines Lau 劉曼玲	85993263	ineslau@ipm.edu.mo	M503
Ke Wei 柯韋	85996452	wke@ipm.edu.mo	A319-A320
Lam Chan Tong 林燦堂	85993342	ctlam@ipm.edu.mo	M537
Law Ka Lun, Eddie 羅家倫	85993287	eddielaw@ipm.edu.mo	M541
Lei Iat Seng, Philip 李日昇	85993356	philiplei@ipm.edu.mo	M540
Liu Yue, June 劉玥	85996433	yue.liu@ipm.edu.mo	A313
Ng Koon Kei, Benjamin 吳冠祺	85996431	bng@ipm.edu.mo	A313
Siu Ka Meng, Andrew 蕭嘉明	85996451	kmsiu@ipm.edu.mo	A320
Tang Su Kit, Jacky 鄧樹傑	85996491	sktang@ipm.edu.mo	A202a
Yang Xu 楊旭	85996353	xuyang@ipm.edu.mo	A323
Yip Lee Wah 葉李華	85993262	lwyip@ipm.edu.mo	M501
Yung Yau Kong, Edmund 容祐江	85993354	edmundyung@ipm.edu.mo	M511

Year Tutors

Class	Teacher	Tel. No.	Email	Office
Year 1-11121	Calana Chan 陳美寶	85993277	calanachan@ipm.edu.mo	M511
Year 1-11221	Andrew Siu 蕭嘉明	85996451	kmsiu@ipm.edu.mo	A320
Year 2-21121	Dr. Yip Lee Wah 葉李華博士	85993262	lwyip@ipm.edu.mo	M501
Year 2-21221	Dr. Yang Xu 楊旭博士	85996353	xuyang@ipm.edu.mo	A323
Year 3-31121	Ho Ka Chong, Wilson 何家忠	85996586	kcho@ipm.edu.mo	A304
Year 3-31221	Dr. Choi Ka Cheng, Rebecca 蔡嘉靜博士	85996491	rebeccachoi@ipm.edu.mo	A202a
Year 4-41121	Dr. Eddie Law 羅家倫博士	85993287	eddielaw@ipm.edu.mo	M541
Year 4-41221	Dr. Cheong Ngai, Phillip 張毅博士	85993333	ncheong@ipm.edu.mo	M520

Student Enquiries

The Programme is operated with the *School of Applied Sciences* (*ESCA*).

Location of the ESCA office:
Room M539, Meng Tak Building, Main Campus.

Opening hours of the ESCA office:

Monday - Thursday	9 am - 1 pm; 2:30 pm - 5:45 pm
Friday	9 am - 1 pm; 2:30 pm - 5:30 pm
Saturday, Sunday and Public holiday	closed

Phone: (853) 85993278 or 85993273
Fax: (853) 28719227

Other Useful Contacts, Telephone Numbers, and Websites

WebMail

https://mail.ipm.edu.mo

SIWeb

https://wapps.ipm.edu.mo/siweb/ – to check timetable and other useful information

Programme Website

http://cp.ipm.edu.mo
https://www.facebook.com/ipm.computing?fref=pb&hc_location=profile_browser

Institute Official Website

http://www.ipm.edu.mo/

Library & Photocopying

Website: http://library.ipm.edu.mo/
Phone: (853) 85996241, 85996708

Computer Service Centre Website

http://csc.ipm.edu.mo/

Computer Help Desk at A201

Phone: (853) 85996152
Fax: (853) 28530505
Email: helpdesk@ipm.edu.mo
Submit requests via email or the web-based service request system (SRMS) at: http://csc.ipm.edu.mo/srms.

Computer Lab Assistant at A213

Phone: (853) 85996147

Bell Centre

Phone: (853) 28719592
Fax: (853) 28719705
Email: mpibell@ipm.edu.mo

Registry

Phone: (853) 85996111/(853) 85996149/(853) 85996103
Fax: (853) 28523746
E-mail: registry@ipm.edu.mo

Student Affairs Office

Phone: (853) 85996203/(853) 85996121/(853) 85996486
Fax: (853) 28706747
E-mail: dge@ipm.edu.mo

Student Counselling and Advisory Services at A119

Phone: (853) 85996139/(853) 85996141
E-mail: priscillalai@ipm.edu.mo or thomasho@ipm.edu.mo

Welfare and Recreation Department

http://www.ipm.edu.mo/en/wrd_general_information.php

Student Union

http://aeipm.ipm.edu.mo/
https://www.facebook.com/aeipm

Alumni

http://ipm.edu.mo/aaaipm/Chinese/cindex.htm

APPENDICES

A1. Important Information and Regulations

Important guidelines and regulations are available in MPI website (Student > Undergraduate). Some of these resources are selected and listed here for your convenience.

Student Handbook

http://www.ipm.edu.mo/cntfiles/upload/docs/student_corner/common/student_handbook_e.pdf
The MPI Student Handbook provides students with such important information about the Institute as its regulations, services, facilities, and communication mechanisms. Printed copies of the Handbook are distributed to new students at the start of each academic year.

Prospectus

http://www.ipm.edu.mo/student_corner/en/prospectus_1920.php
The MPI prospectus provides students with such information as the academic calendar, MPI's profile, logo, motto, mission and vision, MPI's organisation and different study programmes.

Academic Regulations

http://www.ipm.edu.mo/student_corner/en/academic_regulations.php

Assessment Strategy

http://www.ipm.edu.mo/student_corner/en/assessment_strategy.php

Macao Polytechnic Institute Guidelines for Plagiarism Avoidance

http://www.ipm.edu.mo/student_corner/en/guidelines_plagiarism_avoidancephp.php

Examination Regulations for Students

http://www.ipm.edu.mo/student_corner/en/examination_regulations_for_students.php

MPI Rules Regarding Cheating and Other Violations of Examination Regulations

http://www.ipm.edu.mo/student_corner/en/cheating_and_other_violations_of_examination_regul.php

Regulations for the Management of Students' Motorcycle Parking Lot

http://www.ipm.edu.mo/student_corner/en/regulations_for_the_management_of_students_motorcy.php

Adverse Weather Arrangements

http://www.ipm.edu.mo/student_corner/en/typhoons_and_heavy_rain.php

Users, Opening Hours & Regulations of the Sports Court

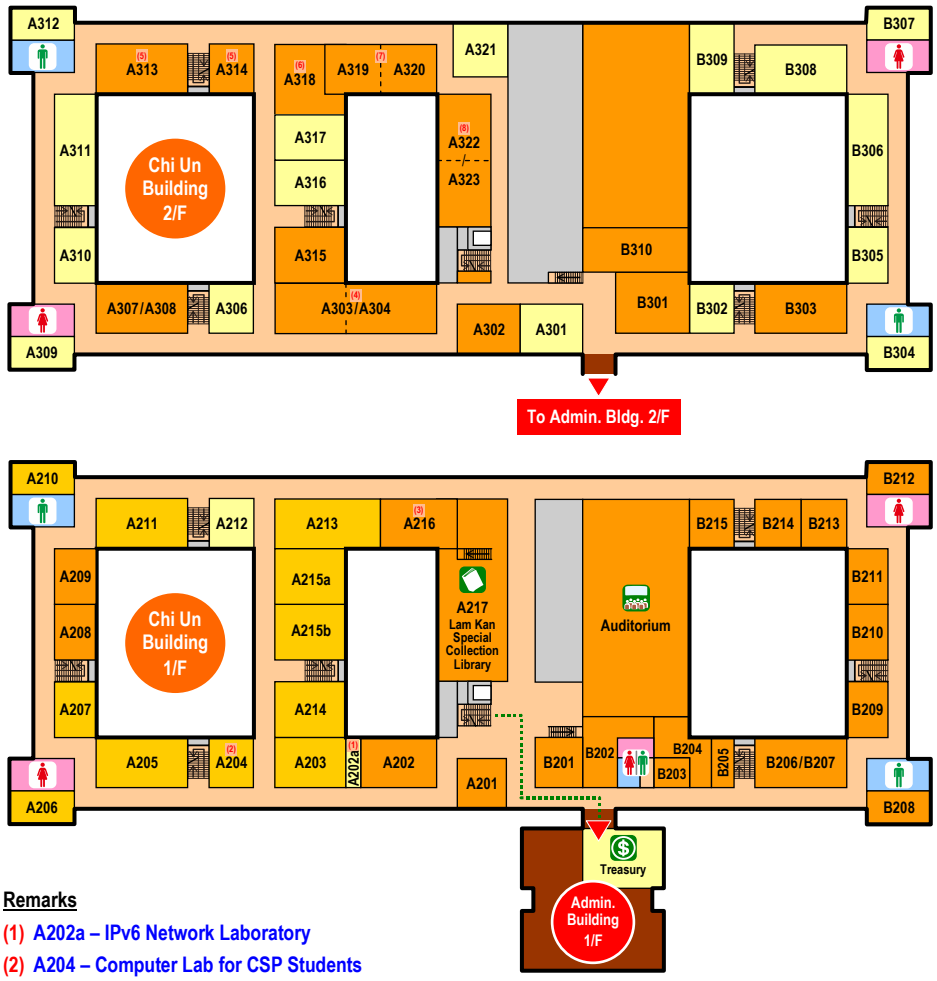
http://www.ipm.edu.mo/student_corner/en/users_opening_hours_regulations_of_the_sports_cour.php

A2. MPI Campus Map

Map of Macao Polytechnic Institute Main Campus (1)

澳 門 理 工 學 院
Instituto Politécnico de Macau
Macao Polytechnic Institute

Map of Macao Polytechnic Institute Main Campus (2)



Remarks

(1) A202a – IPv6 Network Laboratory

(2) A204 – Computer Lab for CSP Students

(3) A216 – Digital Terrestrial Television Research and Testing Centre / CSP Project Lab

(4) A303/A304 – Chinese-Portuguese-English Machine Translation Laboratory

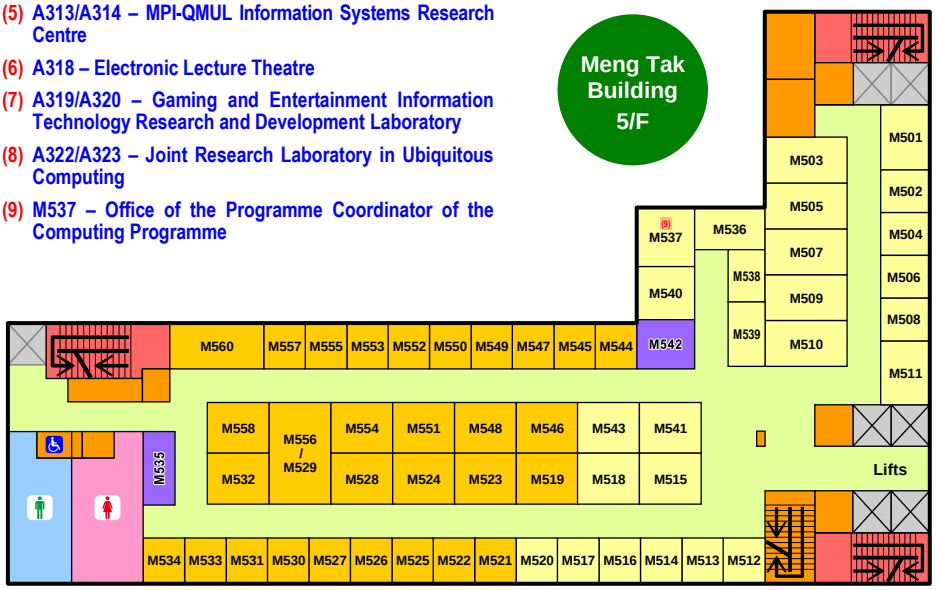
(5) A313/A314 – MPI-QMUL Information Systems Research Centre

(6) A318 – Electronic Lecture Theatre

(7) A319/A320 – Gaming and Entertainment Information Technology Research and Development Laboratory

(8) A322/A323 – Joint Research Laboratory in Ubiquitous Computing

(9) M537 – Office of the Programme Coordinator of the Computing Programme



A3. Academic Calendar

Macao Polytechnic Institute

1st Semester, 2019/20

Week	Month	Events		Public Holidays / Students' Recess	
	August 2019				
	Su M T W T F Sa				
	1 2 3				
	4 5 6 7 8 9 10				
	11 12 13 14 15 16 17				
	18 19 20 21 22 23 24	20	(開學禮) Opening Ceremony		
1	25 26 27 28 29 30 31	22	(開課) First Day of Classes (1st Semester)		
	September 2019				
	Su M T W T F Sa				
2	1 2 3 4 5 6 7				
3	8 9 10 11 12 13 14			14	(中秋節翌日) The day following Mid-Autumn Festival
4	15 16 17 18 19 20 21			16	(中秋節翌日之後首個工作日) First working day after the day following Mid-Autumn Festival
5	22 23 24 25 26 27 28				
	29 30				
	October 2019				
	Su M T W T F Sa				
6	1 2 3 4 5			1	(國慶節) National Day
7	6 7 8 9 10 11 12			2	(國慶節翌日)The day following National Day
8	13 14 15 16 17 18 19			7	(重陽節) Chung Yeung Festival
9	20 21 22 23 24 25 26				
10	27 28 29 30 31				
	November 2019				
	Su M T W T F Sa				
	1 2			2	(追思節) All Soul's Day
11	3 4 5 6 7 8 9			4	(追思節之後首個工作日) First working day after All Soul's Day
12	10 11 12 13 14 15 16				
13	17 18 19 20 21 22 23	27	(課堂結束) Last day of classes (1st sem.)		
14	24 25 26 27 28 29 30	30	(複習/補課) Revision/Make-up Classes		
	December 2019				
	Su M T W T F Sa				
15	1 2 3 4 5 6 7	2-4	(複習/補課) Revision/Make-up Classes	8	(聖母無原罪瞻禮) Immaculate Conception
	8 9 10 11 12 13 14	5-17	(期末考試) Final Examinations (1st Sem.)	9	(聖母無原罪瞻禮之後首個工作日) First working day after Immaculate Conception
	15 16 17 18 19 20 21				
	22 23 24 25 26 27 28			20/12-1/1	(聖誕及新年假期) Christmas / New Year Recess
	29 30 31				

Macao Polytechnic Institute

2nd Semester, 2019/20

Week	Month	Events		Public Holidays / Students' Recess	
	January 2020				
	Su M T W T F Sa				
	1 2 3 4	3	(開課) First Day of Classes (2nd Semester)	1	(元旦) New Year Day
1	5 6 7 8 9 10 11	4	(期末考成績公佈) Final Grades Announced		
2	12 13 14 15 16 17 18	6-7	(補考申請) Application for Re-sit Exam		
3	19 20 21 22 23 24 25	10-16	(補考期) Re-sit Examinations	23/1-2/2	(春節假期) Lunar New Year Recess
	26 27 28 29 30 31	24	(補考成績公佈) Re-sit Exam Grades Announced		
	February 2020				
	Su M T W T F Sa				
	1			1-2	(春節假期) Lunar New Year Recess
4	2 3 4 5 6 7 8				
5	9 10 11 12 13 14 15				
6	16 17 18 19 20 21 22				
7	23 24 25 26 27 28 29				
	March 2020				
	Su M T W T F Sa				
8	1 2 3 4 5 6 7				
9	8 9 10 11 12 13 14				
10	15 16 17 18 19 20 21				
11	22 23 24 25 26 27 28				
12	29 30 31			30	
				31	
	April 2020			4	(清明節) Ching Ming Festival
	Su M T W T F Sa			6	(清明節之後首個工作日) First working day after Ching Ming Festival
	1 2 3 4				
13	5 6 7 8 9 10 11			10	(耶穌受難日) Good Friday
14	12 13 14 15 16 17 18			11	(復活節前日) Holy Saturday/Easter Eve
	19 20 21 22 23 24 25	23	(課堂結束) Last Day of Classes (2nd Sem)	13	(復活節前日之後首個工作日) First working day after Easter Eve
15	26 27 28 29 30	24-27	(複習/補課) Revision/Make-up Classes		
		28/4-11/5	(期末考試) Final Examinations (2nd Sem.)	30	(佛誕節) Buddha's Birthday
	May 2020				
	Su M T W T F Sa				
	1 2	2-11	(期末考試) Final Examinations (2nd Sem.)	1	(勞動節) Labour's Day
	3 4 5 6 7 8 9				
	10 11 12 13 14 15 16	23	(期末考試成績公佈) Final Grades Announced		
	17 18 19 20 21 22 23	25-26	(補考申請) Application for Re-sit Exam		
	24 25 26 27 28 29 30	29/5-4/6	(補考期) Re-sit Examinations		
	31				
	June 2020				
	Su M T W T F Sa				
	1 2 3 4 5 6	1-4	(補考期) Re-sit Examinations		
	7 8 9 10 11 12 13	11	(補考成績公佈) Re-sit Exam Grades Announced		
	14 15 16 17 18 19 20				
	21 22 23 24 25 26 27			25	(端午節) Tuen Ng Festival
	28 29 30				

A4. Class Timetables

Bachelor Computing Programme, School of Applied Sciences
1st Semester of Academic Year 2019/2020

Year 1, Class A

Weekday / Hour	Monday	Tuesday	Wednesday	Thursday	Friday
09:30 - 10:00	COMP113-111 Web Technologies A203 (Wilson Ho)				
10:00 - 10:30		MBUS100-111 Intro. to Business B306 (Chan Ka Man)			MATH111-111 Essential Comp. Math. A316 (Dr. Yip)
10:30 - 11:00					
11:00 - 11:30	MENG111-111 English I M313b-E-Learning Centre (Ines Lau)				
11:30 - 12:00					COMP112-111 Programming I A205 (Calana Chan)
12:00 - 12:30					
12:30 - 13:00					
13:00 - 14:30					
14:30 - 15:00	COMP112-111 Programming I A205 (Calana Chan)	COMP113-111 Web Technologies A211 (Wilson Ho)		COMP111-111 Intro. to Computing A203 (Dr. Yip)	MENG111-111 English I M316-Auditorium (Ines Lau)
15:00 - 15:30					
15:30 - 16:00					
16:00 - 16:30	COMP111-111 Intro. to Computing A203 (Dr. Yip)	MATH111-111 Essential Comp. Math. A316 (Dr. Yip)			
16:30 - 17:00					
17:00 - 17:30					

Year 1, Class B

Weekday / Hour	Monday	Tuesday	Wednesday	Thursday	Friday
09:30 - 10:00					COMP112-112 Programming I A205 (Calana Chan)
10:00 - 10:30		MBUS100-112 Intro. to Business B306 (Chan Ka Man)		COMP112-112 Programming I A205 (Calana Chan)	
10:30 - 11:00					
11:00 - 11:30					MENG111-112 English I M313b-E-Learning Centre (Ines Lau)
11:30 - 12:00	MATH111-112 Essential Comp. Math. A317 (Edmund Yung)			COMP113-112 Web Technologies A214 (Wilson Ho)	
12:00 - 12:30					
12:30 - 13:00					
13:00 - 14:30					
14:30 - 15:00	COMP111-112 Intro. to Computing A203 (Dr. Yip)	COMP111-112 Intro. to Computing A203 (Dr. Yip)		MENG111-112 English I M316-Auditorium (Ines Lau)	MATH111-112 Essential Comp. Math. A317 (Edmund Yung)
15:00 - 15:30					
15:30 - 16:00					
16:00 - 16:30		COMP113-112 Web Technologies A203 (Wilson Ho)			
16:30 - 17:00					
17:00 - 17:30					

A5. Textbook List

Year	Course Name	Course Code	Teacher	Text Book (* = Reference Book)	Edition / Year	Publisher	Author	Remark / ISBN
1	Programming I	COMP112	Calana Chan	Introduction to Java Programming, Comprehensive Version	International Edition	Prentice Hall	Y. Daniel Liang	9781292221878
	Essential Computer Mathematics	MATH111	Dr. Yip / Edmund Yung	* Introductory Computer Mathematics	2nd / 2002	Prentice Hall	Nigel Cook	9780130452894
	Introduction to Business	MBUS100	Chan Ka Man	Understanding Business	13th / 2018	McGraw-Hill	Nickels et al.	9781260092332
	Web Technologies	COMP113	Wilson Ho	* HTML & XHTML: the definitive guide	2007	O'Reilly	Chuck Musciano and Bill Kennedy	9780596527327
				* HTML 5 Up and Running	2010	O'Reilly	Mark Pilgrim	9780596806026
				* CSS Cookbook	2009	O'Reilly	Christopher Schmitt	9780596155933
	Introduction to Computing	COMP111	Yip Lee Wah	Discovering Computers 2018	1st / 2018	Cengage Learning	Vermaat, Sebok, Freund, Campbell, and Frydenberg	9789814792004
	English I	MENG111	Ines Lau	Cutting Edge (Intermediate)	3rd / 2013	Pearson Longman	Cunningham S., P. Moor, and J. Bygrave	9781447936879
				* Ready to Write	3rd / 2010	Pearson Longman	Blanchard, K. and C. Root	9780131363304
				* Success with Reading 3	2009	Cosmos Culture	Gionis, T.	9789861846583