

INFORMATION TECHNOLOGY COURSE MODULES

Develop innovative IT solutions that increase business competitiveness and enhance the quality of life, or even start your very own e-business, with a Diploma in Information Technology (IT).

In your first year, you will focus on core computing skills in programming, networking, databases and enterprise information systems. You will also be given the opportunity to investigate IT-related topics and develop your digital portfolio.

In your second year and third year, you are free to choose from a myriad of electives that suit your interests and passion.

In your final year, you will round off your learning journey with a six-month local or overseas internship with organisations such as KPMG, IBM, Singtel and Microsoft, or launch your own IT business ideas at our technology hubs. You can also work on a capstone project which will beef up your digital portfolio and impress your future employer!

Depending on your passion, you may choose electives from the following areas of interest:

Business & Data Analytics

Acquire knowledge and skills in business intelligence, quantitative analysis, data visualization and predictive analytics to help companies gain a competitive edge.

Cloud Computing

Learn about cloud architecture and technologies, design cloud databases, develop cloud applications, and understand data centre management.

Enterprise Solutioning

Develop business strategies and offerings for the service economy, fulfil customer needs, and improve an organisation's competitive edge.

Games Programming

Create computer games by applying knowledge and skills related to programming, physics and artificial intelligence.

Infocomm Sales & Marketing

Market IT goods or services to businesses and consumers, develop sales and marketing strategies, and understand sales life cycle management.

Mobile Business Applications

Learn about mobile commerce by designing, developing, securing and optimising mobile apps.

Solutions Architect

Design and implement computer solutions using algorithms and data structures to solve business problems efficiently and cost-effectively.

LEVEL 2.1

Fundamentals for IT Professionals

This module gives a course-based experience in which students can engage with the local community and industry. This includes participation in community service events or in Service-Learning projects that leverage students' discipline knowledge and skills to meet identified needs. Through iterative and guided reflection on the service experience, students gain a broader appreciation of their discipline and an enhanced sense of personal voice, empathy and civic

responsibility. Industry talks and seminars are organised to keep students up-to-date on emerging trends so as to build up their interpersonal, team and networking skills with the community and industry.

Object-Oriented Analysis & Design

This module leverages the skills acquired in Object- Oriented Programming to introduce software design and requirements analysis, so that students experience the full cycle of software development. An overview of various Software Development Life Cycles as well as an in-depth look at software development methodologies will be provided. In particular, students will learn about requirements gathering techniques and the primary artefacts of system design. They will be able to specify, design and document simple software systems using appropriate modelling tools.

Web Application Development

This module provides students with the knowledge and skills needed to develop web applications and web application protocol interface (API). Students will be introduced to an integrated development environment that will enable them to design and develop web applications and web API over the Internet. They will learn how to make use of web development technologies such as ASP.NET framework, jQuery for rich internet applications, data interchange formats such as JSON AJAX, source code version control systems such as GIT or SVN to develop effective web applications, and web API targeting both mobile web and unified web experience. This module aims to provide students with a good understanding of the web development architecture and service layer as well as the various issues related to Web Application Development.

World Issues: A Singapore Perspective[^]

This module develops a student's ability to think critically on world issues. Students will discuss a wide range of social, political and cultural issues from the Singapore perspective. It also looks at how city-state Singapore defied the odds and witnessed close to half a century of rapid economic growth, strong political ties and social harmony.

LEVEL 2.2

Full-Stack Development

This module uses the knowledge and skills acquired in the Programming (PRG1 & PRG2), Web Application Development (WEB) and Databases (DB) modules. It aims to provide opportunities for students to be part of a software development team working on both back-end and front-end technologies. The approach is based on Agile methodology. The module may cover source version control, backups, code documentation, refactoring and code reviews. Other key topics include test driven development and automated processes.

Fundamentals for IT Professionals III

This module provides a stepping stone to the students in their IT career. Students are given an insight into the infocomm industries and are kept updated with the latest skill sets required in their IT career path. They also have the opportunity to be exposed to various institutes of higher learning to further acquire their skill sets.

Portfolio II

This module builds on the previous module Portfolio I (P1). Like for Portfolio I, students may choose to undertake a real- life IT project, a competition-based project or a research and development project. The chosen project should ideally include problem definition, requirements gathering, analysis and design, development and testing and the subsequent deliverable of artefacts that are suitable for their personal portfolios. The project may be a continuation of their previous project in Portfolio 1.

User Experience

This module focuses on the principles and techniques for designing good user experience in software applications and other products such as ATMs, kiosks, etc. Students will learn to apply business requirement gathering techniques as well as the analysis, design and validation phases of the user experience design life cycle, with emphasis on building empathy with users. They learn to communicate designs through deliverables such as personas, sitemaps and wireframes. Practical hands-on design activities will be guided by concepts such as information architecture, content

strategy, formulation of user needs, and the application of design principles in interface, navigation, interaction and usability. The student will apply these concepts and techniques to design and prototype a web/ mobile application, and to present and critique design decisions.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 2	
Level 2.1 (22 hours per week)	
Career & Professional Preparation II	2
#	4
Elective Module	
#	4
Elective Module	
Fundamentals for IT Professionals II	2
Object-Oriented Analysis & Design	4
Web Application Development	4
World Issues: A Singapore Perspective [^]	2
Level 2.2 (24 hours per week)	
#	
Elective Module	4
#	4
Elective Module	
Full-Stack Development	4
Fundamentals for IT Professionals III	2
Portfolio II	4
User Experience	4
Interdisciplinary Studies (IS) elective [^]	2

Notes:

[^] For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

For descriptions of elective modules offered by the School of ICT, refer to the Module Descriptions for Level 3. The elective modules offered may change from year to year, depending on relevance and demand. They may also include modules available in other diplomas offered by the School

IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.