

FINANCIAL INFORMATICS COURSE MODULES

Get a strong foundation in IT training, reinforced with exciting modules from these three areas: Financial analytics, banking & finance and enterprise computing in the Diploma in Financial Informatics (FI).

Financial analytics is an increasingly important tool to financial institutions as it helps them stay competitive, identify new business opportunities and detect frauds.

In banking & finance, financial technology is also a growth area. Many financial institutions are using digital technologies to make disruptive changes to their product and service offerings as they compete to meet the growing demands of clients.

Enterprise computing refers to a category of mission-critical information technology that is used by companies including financial institutions to enable core business processes. Without it, companies will not be able to function properly.

In the first year, you will build a strong foundation of IT knowledge, focusing on coding, databases, computer operating systems and networks. Accounting will be taught as well.

In addition to these modules, you will start building your digital portfolios in your first year and continue this effort in your second year. Your portfolios will be useful as you apply for internship in your third year, where you will gain relevant real-world experience with leading financial institutions such as DBS, OCBC, UOB and MAS. You can also intern at FinTech start-ups, accelerators and incubators, with some of them based in London, Australia or South East Asia, as well as well-known IT companies such as SAP and Salesforce.

LEVEL 2.1

Enterprise Business Processes

Business processes are a set of activities that are designed to produce a specific output for an organisation. Processes can be cross-functional or even spanning across organisations. For today's businesses, especially for large and complex organisations with complex products and services, they very much rely on the efficiency and effectiveness of their business operations to compete with competitors, often with the help of IT systems. However, these business processes need to be agile and flexible in order to adapt to changes in business needs. Organisations which are unable to do this will be at a disadvantage. The study of enterprise business processes will illustrate to students the key business processes in typical organisations.

Students will learn about the business strategies used in organisations while implementing business processes, the typical deliverables for a business process that each organisation adopts, the importance of integration of information across different departments or organisations and the relationship between the banks and organisations for all payments with customer and vendors. In addition, students are expected to draw detailed activity diagrams for the major business processes. At the end of the module, students will be able to appreciate the complexity of business processes, how IT can help organisations to be more competitive and gain basic management skills required to manage business processes in an organisation.

Enterprise Systems Design and Development

This module trains students to view information systems from the perspective of business needs and participate in the design of IT solutions to solve the identified business problems. Students will be exposed to work processes such as Design Thinking that facilitates problem identification to prototyping. This module also allows students to work in teams to experience a real-life application development cycle. Elements of project management, automated testing and source version controls will be introduced in relevant phases of the application development cycle. Students will be exposed to current development methodology such as Agile.

In this module, students are assessed by coursework only.

Financial Ecosystem

This module provides a macro overview of the network of organisations involved in the delivery of financial services through both competition and cooperation. Students will be introduced to the various participants in the financial ecosystem, which includes financial intermediaries, regulators, market operators, industry associations and customers. Subsequently, students would also learn about the market microstructures, interactions and interdependencies underlying the relationships intertwining these participants. Additionally, students would learn about the on-going digital evolution in the financial sector and its future implications for all participants.

Web Application Development

This module provides students with the knowledge and skills needed to develop web applications and web Application Programming Interfaces (API). Students will be introduced to an integrated development environment that will enable them to design and develop web applications and web APIs over the Internet.

They will learn how to make use of web development technologies such as the 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 APIs 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

Banking & Financial Products

For banks and financial institutions to gain an edge over their competitors, many are providing consumers and corporates with a wide range of products and services. Many are harnessing information technology in their day- today operations to provide multiple channels and greater efficiency and effectiveness in banking and financial services to enhance overall customer experience. This module provides a macro overview of the financial services industry, including financial intermediaries and allows students to understand the operational structure and the roles and responsibilities of different departments in banks at a high level. Subsequently, a myriad of banking and financial products that are widely available in commercial and investment banks and insurance companies would be discussed. Students will learn about the fundamentals of retail, wholesale and investment products as well as risk associated with them and the mitigating controls that banks put in place to manage the risks. The role of Information Technology is intertwined into the module, allowing students to appreciate the use of IT to increase operational efficiency and effectiveness in financial institutions.

Data Visualization

This module discusses the techniques and algorithms for creating effective visualizations based on principles and techniques from graphic design, visual art, perceptual psychology and cognitive science. The module is targeted both towards students interested in using visualization in their own work, as well as students interested in building better visualization tools and systems. In this module, students are assessed by coursework and examination.

Financial Spreadsheet Engineering

The spreadsheet is an indispensable tool for professionals, especially in the banking and finance industry, to solve business problems and make better informed decisions. This module will introduce students to the use of spreadsheets as a reporting and modelling tool in the areas of business and finance. Through hands-on Excel practical sessions in class, students will explore various spreadsheet functions and simple macros used for analysing, formatting and

presenting data. Students will also be equipped with an understanding of best practices in spreadsheet usage and design.

Fundamentals for IT Professionals II

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 leverages on 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.

Portfolio II

This module builds on the previous module Portfolio I. Similar to Portfolio I, students may choose to undertake a reallife IT/FI 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 artifacts that are suitable for their personal portfolios. The project may be a continuation of their previous project in Portfolio I. Portfolio 1 is a pre-requisite. In this module, students are assessed by coursework only.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 2	
Level 2.1 (24 hours per week)	
Career & Professional Preparation II	2
Enterprise Business Processes	4
Enterprise Systems Design and Development	4
Financial Ecosystem	4
Web Application Development	4
World Issues: A Singapore Perspective [^]	2
Level 2.2 (24 hours per week)	
Banking and Financial Products	4
Data Visualization	4
Financial Spreadsheet Engineering	4
Fundamentals for IT Professionals II	2
Portfolio II	4
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Prescribed/Elective module	4
Interdisciplinary Studies (IS) elective [^]	2

Notes:

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

The prescribed/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.

ELECTIVES OFFERED BY DIPLOMA IN FI

Banking and Finance	Enterprise / IT	Analytics
Economics	Enterprise Resource Planning	Descriptive Analytics
Risk Management	Customer Experience Management	Predictive Analytics
Secure Software Development	Service Management	Quantitative Analysis
Banking Technologies and Operations	IT Outsourcing	Big Data
Financial Analysis & Modelling	User Experience	
Technologies for Financial Industry		