

FYIT SINGAPORE



CaseTrust
Be Sure

Diploma & Higher Diploma in Computing and Information Management

A photograph of a computer lab. Several computer monitors are lined up on a desk, receding into the distance. In the foreground, a mouse and keyboard are visible. The scene is lit with a warm, golden light, possibly from a window or a desk lamp, creating a soft glow on the desk surface.

School of
Information Technology
and Computing



FYIT SINGAPORE

FY Institute of Technology, Singapore was founded to fulfil the education needs of professionals and young adults who wish to expand their formal education within and outside their fields of expertise through a blend of Eastern and Western pedagogies.

FYIT collaborates with reputable foreign universities in the delivery of degree programs and has developed its own proprietary range of industry specific Certificate, and Higher Diploma programs. These programs specialize in Logistics, Information Technology, Arts Design, Tourism & Hospitality, Finance & Accountancy, Business Management, Journalism, Law and Languages

Our Senior Advisor

FYIT is honored to have Professor Cham Tao Soon, ex-President of the Nanyang Technological University and well-known educationalist, as the special advisor to guide the academic development of the institute.

Resume of Professor Cham Tao Soon

Present Appointment:

University Distinguished Professor, (Former President, 1981 - 2002), Nanyang Technological University Republic of Singapore.

Academic Qualifications:

BE (Malaya), 1964; BSc (London), 1967; PhD (Cambridge), 1968; Hon. DUniv (Strathclyde), 1994; Hon. DUniv (Surrey), 1995; Hon. DTech (Loughborough), 1996; Hon. DUniv (Soka), 1997; Hon. DEng (Sheffield), 2002

Scholarships:

• Singapore State Scholar (1960 -64), Commonwealth Scholar, UK (1965 - 68)

Professional Qualifications:

• Fellow of the Institution of Engineers, Singapore, Fellow of the Institution of Mechanical Engineers, UK
• Professional Engineer (Civil Engineering, Mechanical Engineering, Marine Engineering)

Membership of Foreign Academy/Award:

• Chevalier des Palmes Academiques, France, 1979 • Royal Swedish Academy of Engineering Sciences (IVA), 1984 • The Royal Academy of Engineering, UK (FREng), 1998

Honours:

• Half Blue (Cambridge), 1968
• Public Administration Gold Medal - Pingat Pentadbiran Awam, Emas, (Singapore National Day Honours 1986)
• Honorary Professor, Huazhong University of Science and Technology, People's Republic of China, 1994
• Honorary Fellowship, Institution of Engineers, Singapore, 1994
• Eminent Fellow, The Chartered Institute of Building, UK, 1996
• Honorary Fellow, St Catharine's College, University of Cambridge, 1996
• 5th ASEAN Achievement Awards in Education, 1997
• Honorary Professor, University of Electronic Science & Technology of China, 1997
• Honorary Professor, Southwest Jiaotong University, China, 1997
• The Distinguished Service Order, 2003 (Singapore National Day Awards 2003)

Other Appointments:

• Held Currently -NatSteel Ltd (Chairman)
• Singapore Press Holdings Ltd (Deputy Chairman)
• Robinson & Company Ltd
• TPA Strategic Holdings Ltd
• Land Transport Authority
• Singapore International Foundation
• Member, Council of Presidential Advisers
• Chairman, Singapore-China Foundation
• Member, Governing Board of the Lee Kuan Yew School of Public Policy
• Governing Council, Singapore Quality Award (Chairman)
• Rhodes Scholarship (Oxford University), Selection Committee (Chairman)
• The Oxford and Cambridge Society of Singapore (President)
• Chairman, Nanyang Academy of Fine Arts Foundation & Council
• Special Advisor, Governing Council, Singapore Institute of Management
• Honorary Advisory Council, Singapore Computer Society
• Board of Governors, Chinese Heritage Centre
• College of Reviewers for New Opportunities Fund Canada Foundation for Innovation (CFI)
• Academic Advisor, Ritsumeikan Asia Pacific University, Japan
• Advisory Committee, the Association of Aerospace Focused Enterprises (AAFE)



Diploma

1. Advanced Mathematics

This module covers discrete mathematics and provides the framework within which some formal aspects of computer science can be expressed. It also requires students to understand the techniques of mathematical modelling as a means of understanding and solving some common business problems.

- Mathematical modeling and differential equations, number theory, calculus, probability, statistical modeling and data interpretation.
- Vector spaces, vector calculus, ordinary and partial differential equations, groups and fields, real analysis, probability and fundamental ideas of statistical inference.

2. Introduction to Computers

This module provides an introduction to computer science ideas and does not require any background in either computers or programming. The contents cover:

- The essential knowledge on computers and applications and to garner essential skills necessary in an efficient modern working environment.
- Ways in which data can be processed and the applications that support organisations.

3. Social Responsibility and Business Ethics

This module explores business-society relations through the theories and practices of business ethics and social responsibility. The module will consist of two parts:

- The first part will address the concept of business ethics, a discussion of citizenship theory and the challenges of globalisation and sustainability. It will also look at the normative nature of ethical theories, how business ethics has evolved and prescriptions from theoretical frameworks as to how business should be managed.
- The second part of the module will address the issues, impacts of business on individual stakeholder groups and analyze business ethics and social responsibility in relation to each group.

4. Operating Systems & Electronics Technology

Computer systems depend upon an operating system to control system processes and resources. This module analyses the principles of operating systems and goes on to examine the principles of distributed operating systems. The architectures of the principal current operating systems are investigated to demonstrate how these principles are implemented. Topics include:

- Processes and threads of execution
- Concurrent process synchronization
- Concurrent access to hardware resources
- File systems
- Memory management and virtual memory
- Job scheduling
- System modeling and performance evaluation
- Network communication and protocols, and computer and network security.
- A variety of example operating systems of different types will be examined and their characteristics compared.
- In this module, the pertinent elements of solid-state physics and circuit theory are reviewed and applied to the study of electronic devices and circuits, including junction diodes, transistors, and gate and electronic switches; large- and small signal analysis of amplifiers; amplifier frequency response; and rectifiers and wave-shaping circuits.

5. Entrepreneurship

The module focuses on the following:

- An understanding of the entrepreneurial process - how it is driven;
- The entrepreneur - the types of attributes that successful entrepreneurial people tend to have;
- Opportunity recognition and evaluation - how we can recognize exceptional business opportunities;
- Resources for exploiting opportunities - how we obtain these; and strategies for establishing and developing entrepreneurial business ventures.

6. Visual Foxpro Programming

This module is designed enable students to develop database applications in the Windows environment using Visual FoxPro. It will focus on the database programming capabilities of Visual FoxPro as an event-driven programming language.

At the end of the course students will be able:

- To learn and know how to program in Visual FoxPro.
- To understand and use programming environment of Visual FoxPro.

- To develop simple to complex database applications in Visual FoxPro.
- To create functions, procedures, windows, menus and arrays using Visual FoxPro commands.

7. Occupational Ethics and Law

The aim of this module is to enable students to explore contemporary law and ethics and their impact on practice. On completing this module the student should be able to:

- Gain the subject knowledge and understanding
- Demonstrate a deeper knowledge of, and enhanced sensitivity to, legal and ethical dimensions of contemporary practice including some finer aspects of legislation, policy, regulation, professional ethics and contemporary controversies.

This module provides student with an understanding of the need for an ethical approach to business decision-making and the ability to identify, analyze and assess the ethical decision-making to business problems.

8. Computing Concepts and Assembly Language

This module's emphasis is placed on programming principles at machine and assembly language level. Contents cover:

- Computer hardware organization
- The fetch-execute cycle, machine language, and data representation.
- Assembly language programming, addressing techniques, input output, calling conventions, procedures and parameter passing, macros, and conditional assembly.
- Assembler concepts
- Emphasis on the development of well-structured programs in assembly language.

9. C Language Programming

This module provides students with practical experiences in designing, developing, testing, implementing and documenting a set of programs using C programming language.

The introduction to C programming language includes:

- The language syntax
- Building sample C programs
- The selection structure
 - Iteration
- Functions
 - Arrays
- String
 - Files
- Project specification guidelines briefing
- Program design and documentation tasks
- Program development and documentation
- Program testing and debugging
- Presentation, project demonstration / implementation

10. Principles of Accounting

This module is designed to provide students with an understanding of the concepts and principles of accounting, accounting equation, as well as double-entry concepts. Emphasis is placed on analyzing business transactions and understanding financial statements to support decision-making. The students will be taught how to prepare income statements and balance sheet.

The contents cover:

- Fundamental principles of Accounting.
- Objectives and scope of accounting.
- Basics of Accounting concepts
- Preparation of financial statements
- Control accounts
- Working capital management
- Accounting for limited companies
- Basics of cash-flow statements
- Financial analysis
- Basics of auditing and fraud recognition and prevention.
- Higher Diploma in Computing & Information Management

Higher Diploma

1. Introduction to Management and Organizations

This module introduces participants to the theory and application of management and organization. The contents cover:

- The nature of management theory
- The evolution of organisation theory
- Organisation structure and design
- Managerial roles and functions.
- The individual and organizations

- Groups and group behaviour
- Leading and following
- The context of the organisation
- Motivation
- Work Design

2. Data Structures & File Organisation

This module introduces students to fundamental data structures and file organisations used in computing. The topics covered form the basis for further studies in programming and software engineering. Topics covered include:

- Basic data structures (for example, lists, stacks and queues), trees, hashing, heaps, disjoint sets, and graphs, self-adjusting data structures; worst-case, average-case, and amortized analysis; and basic problem solving techniques.
- The art and science of analyzing algorithms
- Learn various techniques for organizing data so that computer programs can access, modify, and delete data efficiently.

The topics are theoretical in nature but have dramatic impact in practice.

3. Computer Networking

This module is designed to extend the student's knowledge of computer networks, their operation and properties and to use this to explore issues to the structure and operations of complete systems of interconnected machines. As such, it addresses in depth a small number of major themes in modern computing through their dependence on network connections. Principal among these themes are distribution and interaction of computers, internetworking in LANs and WANs and its relationship with open systems philosophy, distributed system properties and finally network service issues as they affect applications.

On successful completion of the course, students should be able to:

- Describe and distinguish between the main components of both switched and routed networks
- Understand and apply network performance equations
- Analyse the architecture of ATM, and ISDN networks
- Demonstrate an understanding of internetworking, and the TCP/IP architecture and protocol stack
- Discuss in detail the architecture and implementation of wireless networks.

4. Financial Management

This module will introduce students to the financial theories and techniques are used for financial decision-making within an organisation. Particular emphasis is placed upon corporate investment and financing decisions. It module develops a knowledge and understanding of the sources, uses and management of finance and the development of appropriate business policies and strategies to meet stakeholder needs within a changing environment. The contents cover:

Introduction to financial management and the finance markets
Traditional accounting statements - the balance sheet and profit and loss account;

- Measuring company performance;
- analysis of financial statements and ratios;
- managing working capital;
- cash flow analysis;
- analysis of a company's report and account;
- cost for decision making;
- budgeting;
- principles of capital investments decisions;
- financing the firm/company - long term/stock exchange;
- short term finance

5. Network Implementation and Management

This module focuses on the functions and issues of network implementation and management. Networking service levels which deliver performance, reliability and security underpin the planning, development and operation of all significant IT systems. Knowledge and skills in network planning, design and administration are essential to careers in Systems and Network management.

- Reflect on issues concerning the planning, design and administration of networks, and to make informed judgments on these issues.
- Networking Implementation is designed to teach students fundamental networking concepts and practices.
- Network architecture and standards, networking protocols, TCP/IP, Internet servers, server-side scripting and database connectivity, and security.
- Functional architecture and implementation strategies

6. Internet and the Web

This module introduces the fundamental concepts of the Web. The underlying protocols and typical ways of delivering static and dynamic materials from a

server to a browser. The contents cover:

- History & context of WWW: Arpanet, the Internet, Intranets, TCP/IP, Http
- Addressing & domain names
- Use of Web browser and search engine
- Hypertext, HTML and Markup language
- Introduction to client programming such as Java script and Java
- Introduction to server programming
- Email, hosting, ISPs, accounts, forwarding, video & audio streaming and basic Web functionality

7. Database Systems

This module introduces the fundamental ideas that lie behind the database approach. To provide a grounding in the relational data model and skills in its use, and an appreciation of the hierarchical and network data models and recent developments. The module contents cover:

- The database approach: advantages and costs, how it contrasts with the conventional file approach, the ANSI / SPARC database architecture
- The relational model: what a data model is, structural part of the relational model, relational algebra, entity and referential integrity rules, architecture of a relational database management system (RDBMS) and its relationship to the relational model, SQL.
- Database design, entity relationship modelling, relational data design, normalization, physical data design, database housekeeping, security, concurrency, integrity, database administration.
- Use of a proprietary relational database management system limitations of the relational model, the gap between theory and practice, a brief survey of object and object-relational.

8. WebPages Design and Publishing

This module enables the student to develop the necessary skills and experience to structure information for the World Wide Web. It gives equal emphasis to both technology (web authoring tools, mark-up languages) and creative/analytical aspects of web authorship. The contents cover:

- An introduction to WWW authoring tools and techniques;
- File organisation and management
- Incorporating graphics and digital media into WWW pages
- Developing and designing Web-based graphics and images, incorporating animations and temporal media design and development strategies for information WWW systems.

9. Software Engineering

This module is concerned with the design, development and post-delivery maintenance of software systems. The module contents cover:

- **Software Life Cycle:** The activities of planning and management, analysis, design, implementation, testing, maintenance and enhancements. Deliverables and reviews. Alternative software life cycle models.
- **Project Management:** Techniques for planning, costing, estimating and scheduling projects. Team organisation and management, process monitoring.
- **Quality Assurance:** Reviews and inspections, metrics, standards, tests and certification, Total Quality Management costs and benefits.
- **Configuration Management:** Configuration item, status accounting, derivation and traceability, change control, releases and standards.
- **Software Testing:** Testing objectives, methods, test planning, test case design, validation and verification of software, integration testing, systems and acceptance testing, alpha and beta site testing, reliability and performance measurements.
- **Software Tools:** Tools, toolsets, tool integration, and CASE.

10. Management Information Systems

This module introduces students to the concepts and techniques related to the development and management of an effective information system. Emerging trends in information systems and their impact on organisations and business operations will also be covered.

The module's purpose and viewpoint:

- MIS Systems: nature and scope
- Anatomy of MIS systems; some system theory, system examples; MIS errors.
- Date modelling, holding and processing: data modelling, file structures; sequential, network, hierarchical, relational, batch and real time processing; transaction processing.

- Developments of systems: systems analysis; questionnaires and interviews; system representation methods: SSADM, data flow diagrams, entity life histories, data entity relationships; sizing and quantifications.
- Specialist types of systems: data base systems; decision support systems; executive information systems; expert systems; artificial intelligence; engineering data management.
- Information technology: the computer; data acquisition methods; networking; EDI.

11. Research Methodology & Information Management Project

This module provides students with skills in the practical implementation of information management projects. The project will let students appreciate how information technology is used to carry out the analysis of information requirements and the design and implementation of solutions to a variety of business problems.

The aims of this project are:

- To give the student opportunities to manage their own work and their relationship with a supervisor.
- To equip the student with research practice particularly in the areas of review, design, implementation and evaluation.
- To provide the student with a chance to work in depth in an appropriate chosen area of study, and apply a full range of study skills to independent enquiry.

The module draws together the other elements of the entire course and allows the student to apply the skills, knowledge and understanding gained from those elements to a substantial individual project, involving both research and application.

12. Operating Systems

Computer systems depend upon an operating system to control system processes and resources. This module analyses the principles of operating systems and goes on to examine the principles of distributed operating systems. The architectures of the principal current operating systems are investigated to demonstrate how these principles are implemented. Topics include:

- Processes and threads of execution
- Concurrent process synchronization
- Concurrent access to hardware resources
- File systems
- Memory management and virtual memory
- Job scheduling
- System modeling and performance evaluation
- Network communication and protocols, and computer and network security.
- A variety of example operating systems of different types will be examined and their characteristics compared.

Entry Requirements

Students who have successfully completed a relevant Singapore polytechnic Diploma or HND or China Dazhuan diploma or a relevant Higher Diploma from either the FY Institute of Technology or the Qingdao Feiyang Vocational & Technical College or equivalent can be admitted directly into the final year of the degree programme.

How to Apply

To apply, applicants must complete and submit the prescribed application form.

The Application must be accompanied by the following:

- A one time non-refundable application registration fee
- 1 copy of official transcripts from university/college
- 1 copy of each official certificate
- 1 Passport sized photograph
- Proof of English Language Proficiency (for students from non-English speaking countries)



FYIT (SINGAPORE)

135 Middle Road #03-01 Bylands Building, Singapore 188975

Tel: (+65) 6336 3878 Fax: (+65) 6338 1078 • Email: lesjames@sit.edu.sg • www.sit.edu.sg