

Computer Science

Course Description

(Unless otherwise specified, all are 3-unit term courses of three hours of lecture and one hour of tutorial per week.)

CSC 1110

Introduction to Computing

Computer-oriented problem-solving methods and algorithm development; structured programming concepts; concepts of abstract data types; various commonly used types including vector, list, queue, tree and set; implementation using different data structure such as array, pointer based structure and linked list; illustrative applications. High-level programming language such as "C" and "Pascal" will be used. (Not for students who have taken CSC 1130 or 1500.)

CSC 1130

Introduction to Computer Programming

This course aims at providing students with the basic knowledge of computer programming. In particular, programming methodologies such as object-oriented programming and structured programming, and the use of abstract data types will be illustrated using high-level programming languages such as Java.

CSC 1140

Programming Laboratory

1 U; 1 Lab.

To supplement CSC 1130, a series of programming exercises to be carried out at the beginning of the semester. Students will practise the programming principles they learn using different high-level programming languages. Prerequisite: CSC 1110 or 1130.

CSC 1410

Digital Logic

Number representation. Boolean algebra and logic gates. Combinational circuit minimization. Sequential circuit analysis and synthesis, sequential circuit state minimization, hazards and races. Digital circuit technology: digital integrated circuits, PLA and ROM. (Not for students who have taken CSC 2510.)

CSC 1500

Computer Principles and Programming

3 U; 2 Lect. 1 Tut.

Introduction to programming in a high-level language. Algorithms, computer organization and solution of simple problems. Intended for students who wish to acquire a general knowledge about computers. (Not for Majors of Computer Science and Computer Engineering, and students who have taken CSC 1110 or 1130.)

CSC 1720

Introduction to Internet

2 U; 2 Lect. 1 Prac.

This course aims at providing a user's perspective of the Internet. Services available on the Internet such as electronic mail, mailing list, file transfer, network news, remote login, bulletin board systems, the World Wide Web, Gopher, WAIS and IRC will be introduced. Other topics include Internet services in Hong Kong, the use of Chinese language, methods of

providing information on the Internet, and the security, social and cultural issues. (Not for Majors of Computer Science, Computer Engineering, Information Engineering and Internet Engineering.)

CSC2100

Data Structures

The concept of abstract data types and the advantages of data abstraction are introduced. Various commonly used abstract data types including vector, list, stack, queue, tree, and set and their implementations using different data structures (array, pointer based structures, linked list, 2-3 tree, B-tree, etc.) will be discussed. Sample applications such as searching, sorting, etc., will also be used to illustrate the use of data abstraction in computer programming. Analysis of the performance of searching and sorting algorithms. Application of data structure principles. Prerequisite: CSC 1110 or 1130 or its equivalent. (Not for students who have taken CSC 2520.)

CSC2110

Discrete Mathematics

Set theory, functions, relations, combinatorics, graph theory, algebraic systems, propositional and predicate logic.

*CSC2420

Computer Structures and Assembly Language Programming

CSC2510

Computer Organization

This course is designed to provide the basic knowledge of computer organization and assembly language programming. Functions and structures of the basic building blocks: CPU, memory unit and input/output units will be introduced. Assembly language programming is used as a tool to study the internal coding of information, number representation, arithmetic operations, and the flow of information within a microcomputer. Prerequisite: CSC 1500. (Not for Majors of Computer Science and Computer Engineering, and students who have taken ELE 3230.)

CSC2520

Data Structures and Applications

This course formally examines the relationship between abstract data types and data structures. The implementation of abstract data type using various data structures will be discussed. Sample abstract data types including vector, list, stack, queue and tree will be introduced and illustrated with applications such as searching, sorting, etc. Prerequisite: CSC 1110 or 1130 or 1500. (Not for Majors of Computer Science and Computer Engineering, and students who have taken CSC 2100.)

*CSC2700

COBOL Programming

CSC2800

Numerical Computation

This course aims at introducing the computational techniques on numerical methods. Course contents include computational error analysis; algorithms for roots finding; solutions of linear and non-linear equations, and their sensitivity to computational errors; constrained and unconstrained optimization; curve fitting; applications examples. Prerequisite: CSC 1110 or 1130 or 1500 or its equivalent. (Equivalent to CSC 2600 offered in 1999-2000 and before.)

* Courses offered in 2001-02 and before.

CSC3100**Software Engineering**

Software lifecycles: system modelling, requirements analysis and specifications, design techniques, implementation methodology, testings, maintenance and engineering laboratory. Analytical tools: software metrics, system performance measurement and evaluation. Management techniques: estimations, planning, project management, communication skills and documentations. Introductions to CASE tools and security. Prerequisite: CSC 1110 or 1130. (Not for students who have taken ERG 3820 or IEG 3080 .)

CSC3120**Compiler Construction**

Formal aspects, lexical analysis, syntax analysis, syntax-directed translation, run-time environments, intermediate code generation, code generation, code optimization.

CSC3130**Formal Languages and Automata Theory**

Deterministic and nondeterministic finite automata, regular expressions, context-free grammars, pushdown automata, context-sensitive grammars, parsing of LR(O) and LR(K) languages, introduction to Turing machines and computability. Prerequisite: CSC 2110.

CSC3150**Introduction to Operating Systems**

Principles of operating systems: process management, memory management, file system, protection and security. Design and implementation methodology, performance evaluation. Case studies: Concurrent Programming. Prerequisite: CSC 2100.

CSC3160**Design and Analysis of Algorithms**

Sorting and searching. Big O-notation. Design strategies, such as greedy method, divide and conquer, and dynamic programming. Combinatorial and graph algorithms. NP-completeness. Prerequisites: CSC 2100 and 2110. (Not for students who have taken CSC 3190.)

CSC3170**Introduction to Database Systems**

Concepts and principles of database management systems. Subjects include: basic concepts, system structures, data models, database languages (SQL in particular), relational database normalization, file systems, indexing, query processing, concurrency control and recovery schemes. Prerequisites: CSC 2100 or 2520. (Not for students who have taken ITM 3010.)

CSC3180**Principles of Programming Languages**

This course introduces, analyses and evaluates the important concepts found in current programming languages. The concepts are illustrated by contrasting their appearances in different languages. Major topics include: concepts, paradigms and implementation techniques. Prerequisites: CSC 2100 or 2520.

CSC3190**Introduction to Discrete Mathematics and Algorithms**

Introduction to logic, combinatorics, recurrence relations and graph theory. Design and analysis of algorithms: greedy method, divide and conquer, and dynamic programming. Fundamental algorithms including sorting, graph algorithms, number-theoretic algorithms and numerical algorithms. Introduction to NP-completeness. Prerequisite: CSC 2100. (Not for students who have taken CSC 3160.)

CSC3210

Principles of Multiagent Systems

This course discusses the principles of multiagent systems. Topics include interactions, coordination, organizations and communications in multiagent systems; agent actions and behaviours; artificial minds; and task distribution. Prerequisite: CSC1110 or 1130.

CSC3230

Fundamentals of Artificial Intelligence

Basic concepts and techniques of artificial intelligence. Knowledge representation: predicate logic and inference, semantic networks, scripts and frames, and object-oriented representation. Searching: such as A*, hill-climbing, minimax and alpha-beta pruning. Planning: the frame problem and the STRIPS formalism, representation schemes and planning strategies. Neural networks: learning algorithms, neural architecture and applications. Natural language processing. Knowledge acquisition and expert systems: properties, techniques and tools of expert systems. Prerequisite: CSC2100.

CSC3250

Computer and Society

This course studies the issues and applications of computers and information technology in society. Topics include engineering economics of computers, computer ethics, IT policy, issues and models of IT applications in education, health, entertainment, industry and business. Local examples will be used as far as possible.

CSC3260

Principles of Computer Graphics

An overview of the state-of-the-art computer graphics hardware and interaction devices will be presented together with the techniques for user interaction with virtual devices. Fundamental computer graphics techniques and algorithms will be introduced including transformation of coordination systems, scan conversion algorithms, hidden surface algorithms, aliasing problems and anti-aliasing techniques, lighting models and basic shading techniques. Prerequisite: CSC2100 or 2520.

CSC3280

Introduction to Multimedia Systems

This course covers the design and implementation of modern multimedia systems. Topics include multimedia systems design, multimedia data representation, multimedia hardware and software, multimedia communication and networking, multimedia programming, and multimedia information systems. Prerequisite: ERG 2020.

CSC3420

Computer System Architectures

This course provides a foundation for understanding and evaluating the design principles incorporated in modern computer systems with particular emphasis on architectural features required to support high-level languages and system software: design methodology and descriptive tools; instruction set design; memory system design; control system design; input/output systems design; parallel processing concepts and future trends. Prerequisite: ERG 2020. (Not for students who have taken CEG 3420.)

*CSC3430
Microprocessor Systems

*CSC3480
Digital Systems Design

CSC3530
Software Technology
Modern software applications based on the three fundamental technologies: object orientation, client/server and the Internet. The focus of this course is on the infrastructure that supports these applications. In particular, concentration is on the complex and crucial enabling technologies known as middleware components, such as web browsers, SQL servers, client/server transaction processors, CORBA, OLE, mobile computing middleware, distributed-multimedia middleware, etc. (Not for Majors of Computer Science and Computer Engineering, and students who have taken CSC 3100 or IEG 3080.)

CSC3550
Introduction to Computer Graphics
This course aims to provide students from all disciplines with an opportunity to learn about computer graphics with emphasis on its Internet applications. Topics of this course include basic geometry for computer graphics, transformation of coordinate systems, scan conversion, texture mapping, shading and illumination, sensor types in user interactions and animation. The above topics will be examined on the Internet using the newest graphics software VRML (Virtual Reality Modelling Language), which allows students to describe 3D multimedia objects and create interactive scenes and worlds for the applications in education, architecture, arts, business and entertainment, and publish graphics work on the Internet. Prerequisite: CSC 1110 or 1130 or 1500 or its equivalent. (Not for Majors of Computer Science and Computer Engineering.)

CSC3640
Introduction to Theoretical Computer Science
Introduction to logic and set theory. Basic graph theory. Design and analysis of algorithms. Complexity theory. Languages, automata and computability theory. Prerequisite: CSC 2100 or 2520. (Not for Computer Science Majors.)

CSC4010, 4020
Final Project I, II
4 U each; 4 Lect. 1 Lab.
This course involves a significant project in any area of computer science. The project may be taken individually or in small group. A project report has to be written under the supervision of the teaching staff.

CSC4120
Principles of Computer Game Software
This course aims at establishing the principles, techniques and tools in the design and development of computer game software with focus on the real time performance consideration. Topics include: stages in computer game development, concept of game engine, rendering considerations, physics effects, artificial intelligence (AI), audio effects, scripting and environment for game project development. Prerequisite: CSC 2100 or 2520. Prerequisite/Corequisite: CSC 3260 or 3550.

* Courses offered in 2001-02 and before.

CSC4130

Introduction to System Administration Laboratory

1 U; 1 Tut. 3 Lab.

The purpose of this course is to introduce the basic knowledge of system administration. Sample laboratory work include system installation, system upgrade, resource configuration and security setup. Prerequisites: CSC 3150 or CEG 3150, and CSC 4430 or CEG 4430. (Not for Computer Science Minor students.)

CSC4160

Distributed and Parallel Computing

This course introduces concepts, models and implementations related to distributed and parallel computing. Topics include parallel and distributed system architectures, concurrent languages, synchronization and concurrency control techniques, and applications in distributed databases.

CSC4260

Current Topics in Computing Techniques

This course aims at providing the students with the latest knowledge of advancements in pure or applied computer science. Topics covered in this course will vary from year to year, subject to the availability and speciality of the teachers.

CSC4430

Data Communication and Computer Networks

This course is designed to present a systematic approach to the study of data communication and computer networks. The ISO OSI seven layered protocols are accepted as the framework for the course. Physical layer includes digital data transmission, data encoding and data communication techniques. Medium access sublayer includes ALOHA control protocols, IEEE 802 local area network protocols and fiber optic network protocols. Data link layer design issues, error detection and correction, sliding window protocols, network layer design issues, routing algorithms, internetworking. Transport layer and session layer design issues and examples on application layer protocols.

CSC4510

Programming Languages and Compilers

A systematic study of computer languages, the interplay between their designs and implementations, and an introduction to compilation. Classifications of languages and comparison of paradigms. Data types and structures, control structures and data flow, and flexibility and efficiency considerations. An introduction to all phases of compilers, grammars, lexical analysers and parsers. Prerequisite: CSC 3510. (Not for Majors of Computer Science and Computer Engineering.)

CSC4640

Computer Structures

This course aims at providing an understanding of the design of a typical computer system. An overview of earlier generations of computer systems will be followed by detailed discussions of the principles and designs of the von Neumann computer and its derivatives. Topics covered will include data representations, computer arithmetic and ALU, machine instruction formats, memory hierarchy concept and implementation, I/O management, control unit and overlapped execution. Comparisons of modern computer systems will also be presented. Prerequisite: CSC 2510. (Not for Majors of Computer Science and Computer Engineering.)

CSC5110

Advanced Topics in Software Engineering

Formal and advanced quantitative approaches in software engineering. Formal specifications: algebraic and model-based specifications, reasoning and proving, formal refinements and

transformations from specifications to programmes. Software security: encryption theory and systems, viruses and other software attacks, controls and protections. Software reliability: models, theory and applications.

CSC5120

Advanced Topics in Database Systems

This course will introduce to students advanced topics in database systems including advanced data structures, concurrency control, deadlock resolutions, recovery schemes, distributed database systems, multimedia database indexing techniques and data mining. Prerequisite: CSC 3170. (Not for students who have taken SEG 5010.)

CSC5130

Theory of Programming Languages

This course is intended to provide for senior undergraduate and beginning graduate students a concise survey of the most important and fundamental work on semantics of programming languages of different paradigms, together with the necessary background material from logic, lambda calculus, type theory, domain theory and category theory. All of the three major approaches to semantics - denotational, operational and axiomatic - and the relations among them are discussed. Prerequisites: CSC 2110 or 3640; and 3180.

CSC5140

Advanced Topics in Operating Systems

This course will introduce to students advanced topics in operating systems. The detailed contents may be changed from year to year depending on the current development and the teacher specialty. Prerequisite: CSC 3150.

CSC5150

Learning Theory and Computational Finance

This course aims to introduce the computational learning theory for applications to various areas of finance. This course consists of two parts. The first part gives an introduction of basic mathematical methods in finance. The second part deals with nonlinear computing models, Bayesian Ying-Yang unified learning theory, other computational learning techniques, and their applications to FOREX or stock forecasting, portfolio optimization and programmed trading.

CSC5160

Topics in Algorithms

This course will introduce to students topics in algorithms. The detailed contents may be changed from year to year depending on the current development and teacher specialty.

CSC5170

Theory of Computation Complexity

Deterministic and non-deterministic Turing machine, Church's thesis, uncomputability and intractability, NP-completeness, polynomial time hierarchy, probabilistic computation, predicate calculus and incompleteness.

CSC5180

Techniques for Data Mining

Data mining provides useful tools for the analysis, understanding and extraction of useful information from huge databases. These techniques are used in business, finance, medicine and engineering. This course will introduce the techniques used in data mining. Topics will include clustering, classification, estimation, forecasting, statistical analysis and visualization tools. Prerequisite: CSC 3170 or its equivalent.

CSC5190

Artificial Intelligence Programming

This course examines two representational paradigms of artificial intelligence programming. Topics in logic programming include unification, SLD-resolution, prolog, negation and control, trees, list, difference list, and programming techniques. Topics in functional programming include function definitions, recursive functions, scope, higher-order functions, programming techniques and basic lambda calculus. Prerequisite: CSC 3180.

CSC5210

Advanced Topics in Computer Graphics and Visualization

A more in-depth treatment of computer graphics and visualization techniques will be given. Topics of this course include radiosity and global illumination, procedural texturing and modelling, advanced animation, volume rendering, information visualization and real-time exploratory scientific visualization. Prerequisite: CSC 3260 or its equivalent.

CSC5220

Advanced Topics in Multimedia Database

This course aims at an in-depth study of various aspects in the frontier research of multimedia database systems. These include image processing methods, indexing methods, system design issues, and basis of multimedia data such as compression techniques and resource management. Image processing methods for shape, color, texture manipulation, etc., will be covered. Indexing methods of R-trees, VP-trees, X-tree, etc., will be introduced. This course will provide the students with a theoretical background as well as a hands-on experience in the design and implementation of a multimedia database system.

CSC5230

Advanced Topics in Compiler Construction

Advanced topics in compiler construction, including code optimization, partial evaluation, supercompilers, compilation techniques for multiparadigm languages, concurrent compilers, etc.

CSC5240

Topics on Constraint Processing

This is a research-oriented course. Students will be exposed to various constraint processing approaches that arise in artificial intelligence, logic programming, operations research, etc. Topics include, but are not limited to, local propagation, consistency algorithms, Boolean constraint solving, numerical constraint solving, linear programming and their applications.

CSC5250

Information Retrieval and Search Engines

This course surveys the current research in information retrieval for the Internet and related topics. This course will focus on the theoretical development of information retrieval systems for multimedia contents as well as practical design and implementation issues associated with Internet search engines. Topics include probabilistic retrieval, relevance feedback, indexing of multimedia data and applications in e-commerce.

CSC5260

Brain Theory and Sensorimotor Processing

The main focus of the class will be to explore various aspects of biological neural network modelling for visuomotor coordination. Topics such as visual perception of form, texture, color, depth and motion, motor movement generation, sensorimotor interaction, neural mechanisms for learning and memory, and applications to intelligent robots will be examined.

This will be an interdisciplinary course combining engineering, cognitive science and neuroscience approaches. Students are expected to have knowledge in linear algebra, calculus, probability theory and programming.

CSC 5270

Principles of Computational Learning

This course aims at providing theoretical guides and useful tools for students working on neural networks, pattern recognition, computer vision, artificial intelligence or other topics involving learning and mathematical modelling. The first part of this course is an extensive introduction to learning theories and techniques for neural networks or intelligent computational machinery in general. The second half will cover the major techniques such as supervised learning, unsupervised learning and self-organization, as well as reinforcement learning. It would be helpful to have some previous knowledge on probability theory, statistics, neural networks and pattern recognition.

CSC 5280

Image Processing and Computer Vision

Image processing: enhancement technique, image compression, segmentation, morphology, color image processing and restoration. Computer vision: representation, decision models, structural methods and image understanding.

CSC 5290

Theory of Neural Computation

This course introduces the current state-of-the-art neural network research. It covers the learning algorithms of various neural network paradigms such as the backpropagation network, the Boltzmann machine, the Hopfield network, bidirectional associative memory, adaptive resonance theory, the Kohonen network and learning vector quantizer. Techniques in the theoretical analysis of their characteristics, limitations, storage capacity, stability and convergence are included.

CSC 5320

Topics in Graph Algorithms

A course on graph theory and graph algorithms with emphasis on the algorithmic aspects of graph theory. The course will cover classical topics such as search techniques, connectivity, colouring, matching and covering, network flows, planarity, traversability, perfect graphs, and NP-completeness of graph problems. It will also cover recent advances in graph minors and fixed-parameter tractability of graph problems. Prerequisite: CSC 3160 or its equivalent.

CSC 5340

Advanced Topics in Distributed Software Systems

This course will provide knowledge of basic architectural features of distributed systems, including client-server systems, network systems, middleware systems, and their main advantages, challenges, design issues and current solutions. Current object-oriented distributed system and software platforms (CORBA, DCOM, and Java/RMI) will be studied in detail. Topics include: distributed systems characteristics and design issues, distributed software engineering, communication and remote procedure calls, building distributed systems, generosity and interoperability, naming and trading services, concurrent processes and threads, transactions and distributed transactions, reliability and availability, and security problems and solutions. Laboratory of a series of distributed system projects will be assigned and conducted.

CSC5410

Advanced Computer Architecture

This course is designed to present an overview of some advanced computer architectures and their underlying design principles. Issues discussed will include scalability and performance evaluation. The underlying technologies such as processor and memory hierarchy, cache and shared memory, and advanced pipelining techniques will be presented. Examples of high performance vector processors, multicomputers and massive parallel processors will be compared. Some novel architectures such as VLIW, fault tolerant systems and data flow machines will also be elaborated. Prerequisite: CSC 3420.

CSC5420

Computer System Performance Evaluation

Computer system performance evaluation through analytical and simulation studies. Brief overview of queuing theory, computational algorithms, sequential and parallel simulation techniques. Performance evaluation in distributed resource allocation, computer interconnection architecture, multiprocessing and multithreads computation, parallel I/O architectures, distributed database concurrency control protocols, multiple access protocols in communication network, and parallel programming models, etc. Students are expected to have knowledge in probability, stochastic processes and computer architecture.

CSC5430

Autonomous Agents and Multiagent Systems

Characteristics of autonomous agents. Agent architectures: BELIEF-DESIRE-INTENTION architecture, purely reactive architectures and hybrid architecture. Multiagent systems: speech acts theory, agent communication and agent cooperation protocols. Agent-oriented programming. Distributed hierarchical planning. Distributed rational decision making: protocols and strategies, Nash equilibrium and Pareto optimality, auctions, voting, Clarke tax, OCSM-contracts. Argumentation and negotiation. Prerequisite: CSC 2110.

CSC5460

Advanced User Interfaces and Virtual Reality

Human-Computer interaction stresses the importance of good 2D/3D interfaces and the relationship of interface design to effective human interaction with computers. The theoretical knowledge and up-to-date technology in the fundamental aspects of designing, implementing and evaluating interfaces will be discussed. Topics in virtual reality novel interfaces, including gesture recognition, spaces mapping, multimedia multi-model interfaces, VR tools, tracking systems, cooperative work and applications, will be introduced and examined. Prerequisite: CSC 3260 or its equivalent.

CSC5470

Computer and Network Security

Issues of computer and network security. Security protocols. Firewalls. Computer viruses. Audit trails. System security threats. Applications of cryptography. Prerequisite: CSC 4430 or IEG 3310 or its equivalent. (Not for students who have taken IEG 5240.)

CSC5480

Distributed Multimedia and Networks

This course covers issues such as multimedia technology and trends, overview of compression techniques, multimedia storage servers design, multimedia network architectures and protocols, operating system support for multimedia applications, multimedia databases and application protocols such as distributed media synchronization. Under different topics, performance evaluation will be studied so as to quantify different design and implementation options. Prerequisites: CSC 3150 and 4430, or their equivalents.

Study Scheme

1. Major Programme

Applicable to students admitted in 2001-02 and thereafter

Students are required to complete a minimum of 75 units of Major courses as follows (Please see Note):

- | | | |
|------|--|----------|
| (i) | Required Courses:
CSC1130, 1140, 2100, 2110, 2800, 3100, 3130, 3150,
3160, 3170, 3180, 3420, 4010, 4020, 4430, ELT 1111,
ERG 2020, 2040, MAT 2310 | 57 units |
| (ii) | Six Elective Courses from:
CSC3120, 3210, 3230, 3250, 3260, 3280, 3430, 3480,
4120, 4130, 4160, 4260, 5110, 5120, 5130, 5140,
5150, 5160, 5170, 5180, 5190, 5210, 5220, 5230,
5240, 5250, 5260, 5270, 5280, 5290, 5320, 5340,
5410, 5420, 5430, 5460, 5470, 5480, CEG 3470, 3490,
5010, 5270, 5330, IEG 3050 [#] , 4180 [#] , SEG 3420 [#] ,
3430 [#] , 3490 [#] | 18 units |

Total: 75 units

Recommended course pattern

Term 1	Units	Term 2	Units	Term 3	Units
General Education	3	General Education	3	General Education	3
Physical Education	1	Physical Education	1	CSC 3130	3
CSC 1130	3	CSC 1140	1	CSC 3150	3
CSC 2110	3	CSC 2100	3	CSC 3160	3
ERG 2020	3	CSC 2800	3	CSC 3170	3
MAT 2310	3	ERG 2040	3	Elective	3
	—	ELT 1111	3		—
	16		—		—
			17		18
Term 4	Units	Term 5	Units	Term 6	Units
General Education	3	CSC 4010	4	CSC 4020	4
CSC 3100	3	Electives	12	Electives	10
CSC 3180	3				
CSC 3420	3				
CSC 4430	3				
Elective	3				
	—		—		—
	18		16		14

SUMMARY

	Units
General Education	12
Physical Education	2
Major Required Courses	57
Major Electives	18
Free Electives	10
	—
Total	99

Note: Major courses coded 3000 and above will be included in the calculation of the Major GPA for honours classification. Courses with “#” are to be included in the Major GPA as well.

2. *Minor Programme*

Students are required to complete a minimum of 18 units as follows:

- (i) Required Courses: 12 units
CSC 1500, 2510, 2520 and 3530
- (ii) Elective Courses: 6 units
CSC 3170, 3180, 3210, 3250^Δ, 3280, 3420, 3550,
3640, 4120, ERG 3820, INE 2720^Δ

Total: 18 units

D The units earned by taking CSC 3250 or INE 2720 which count towards the requirement of this Minor programme in Computer Science shall not count towards the requirement of the Minor programme in Information Technology and vice versa. Students are required to declare if CSC 3250 or INE 2720 which they enrol will count towards the requirement of the Minor programme in Computer Science at their final term of attendance.

Notes: 1. Course and Unit Exemptions (for Minor students only):
Students are allowed to exempt from a maximum of 9 units of courses.
Students who have taken course(s) in Column A will be exempted automatically from taking the corresponding equivalent course(s) in Column B due to similarities in the contents of some courses.

Column A	Column B
CSC 1110	CSC 1500
ELE 3230	CSC 2510
CSC 2100	CSC 2520
CSC 3100	CSC 3530
IEG 3080	

- 2. **Applicable to students admitted in 2001-02 and thereafter:**
Other than the course and unit exemptions stated in Note 1 above, courses which Automation and Computer-Aided Engineering, Electronic Engineering, Information Engineering, Innovation and Design Engineering, and Systems Engineering and Engineering Management Majors have taken to fulfil their Major requirement cannot be used to fulfil the Minor programme requirement.
- 3. **Applicable to Mathematics and Physics Majors admitted in 2000-01 and thereafter:**
 - Mathematics Majors who have taken MAT 2072 and 3320 will be exempted from CSC 1500. They may also choose any one from MAT 3230, 3240 and 3260 as Minor elective course.
 - Physics Majors who have taken PHY 2351 will be exempted from CSC 1500. They may also choose PHY 3350 and any one from PHY 4350, 4360 and 4370 as Minor elective course.