

COMP 4065 Performance Modelling and Analysis of Computer Systems (3,2,1) (E)

Prerequisite: MATH 2206 Probability and Statistics

This course provides students with basic knowledge and skills of performance modelling and analysis of computer systems. Topics to be covered include queueing systems, queueing networks, and computer simulations. In addition, some case studies will be introduced to help students acquire practical insights of this field.

COMP 4066 Principles of Programming Language (3,2,1) (E)

Prerequisite: COMP 2007 Object Oriented Programming

This course introduces the concepts that underline most of the programming languages students are likely to encounter, and illustrates those concepts with examples from various languages. Topics include syntax and semantic analysis, bindings, type systems, programming paradigms, control abstraction and flow, and runnable program buildup.

COMP 4067 Theory of Computation (3,2,1) (E)

Prerequisite: MATH 1205 Discrete Mathematics

This course aims to introduce some fundamental concepts in theoretical computer science. The topics include non-deterministic and deterministic finite automata, regular languages, context-free languages, pushdown automata, Church's hypothesis, Turing machines, computability, and complexity theory.

COMP 4075 Web Intelligence Concepts and Applications (3,3,0) (E)

Prerequisite: COMP 1005 Essence of Computing and COMP 3015 Data Communication and Networking

This course introduces the fundamental concepts as well as practical applications of contemporary Artificial Intelligence (e.g. incorporating knowledge discovery and data mining, intelligent agents, and social network intelligence) and advanced Information Technology (e.g. involving wireless networks, ubiquitous devices, social networks, and data/knowledge grids) in the context of Web empowered systems, environments, and activities. In addition, it discusses the techniques and issues central to the development of Web Intelligence (WI) computing systems.

COMP 4076 Selected Topics in Digital Media and Mobile Technology (3,2,1) (E)

Prerequisite: The prerequisite depends on the selected topics. The prerequisite and the selected topics will be announced before the semester starts.

Students will learn some state-of-the-art topics in digital media or mobile technology.

COMP 4077 Selected Topics in Enterprise Systems and Business Intelligence (3,3,0) (E)

Prerequisite: The prerequisite depends on the specific topics covered. The prerequisite and the chosen topics will be announced before the semester starts.

Students will learn state-of-the-art topics in enterprise systems and business intelligence. Emphasis will be placed on the current issues, methodologies and/or practice. After completing this course, students will understand some current topics in and methodologies of enterprise systems and business intelligence.

COMP 4085 Selected Topics in Intelligent Informatics (3,3,0) (E)

Prerequisite: The prerequisite depends on the specific topics covered. The prerequisite and the chosen topics will be announced before the semester starts.

This course deals with the selected topics in intelligent informatics. Students will learn some state-of-the-art topics in intelligent informatics, through which students are able to solve the problems in some selected domains, such as machine learning, planning, self-organization, evolutionary computing, data mining, Web intelligence, intelligent agents, brain informatics, and parallel and distributed information processing.

COMP 4086 Selected Topics in Theoretical Computer Science (3,3,0) (E)

Prerequisite: COMP 3005 Design and Analysis of Algorithms

This course provides an in-depth study on a selected topic of theoretical computer science. The topic to be covered may vary from semester to semester, and is to be determined by the instructor. The topic could be a specific area of algorithmic problems (e.g. graph algorithms, combinatorial optimization), or a particular algorithm design paradigm (e.g. randomized algorithms, parallel algorithms).

COMP 4087 Selected Topics in Web Technology and Data Engineering (3,3,0) (E)

Prerequisite: The prerequisite depends on the specific topics covered. The prerequisite and the chosen topics will be announced before the semester starts.

Students will learn state-of-the-art topics in Web technology and data engineering. Emphasis will be placed on the current issues, methodologies and/or practice. After completing this course, students will understand some current topics in and methodologies of Internet and large scale systems.

COMP 4095 Information Systems Management and Professional Practices (3,2,1) (E)

Prerequisite: Year IV standing in Computing and Information Systems

The course deals with the management of information systems and technology as it is being practised in organizations today to produce value for businesses. It also examines important professional issues in contemporary practice to help students become effective participants in a team of professional information systems practitioners.

COMP 4096 Business Intelligence and Decision Support (3,2,1) (E)

Prerequisite: COMP 2016 Database Management

Students will learn the methodologies and concepts of business intelligence, including the characteristics, architectures, and development of data warehouses and data marts. After completing the course, the students will understand the features and applications of Online Analytic Processing (OLAP), and identify the different types of OLAP. Emphasis will be placed on the understanding of enabling technologies and their applications to improve business operations and decision making.

COMP 4097 Mobile Computing (3,2,2) (E)

Prerequisite: COMP 3015 Data Communications and Networking

This course introduces the basic concepts and principles in mobile computing. This includes the major techniques involved, and networks and systems issues for the design and implementation of mobile computing systems and applications. This course also provides an opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications.

COMP 4105 Web Search Principles and Technology (3,2,1) (E)

Prerequisite: COMP 1005 Essence of Computing

This course provides a comprehensive examination of different popular search systems for diverse types of data such as text, image, video and audio information. Students will be introduced to the powerful features in these systems, as well as the technology underpinning them. Students will learn how large information repositories are efficiently organized, managed and searched, and the principles of Web search engines and information retrieval.

COMP 4888-9 Final Year Project (3,0,9) (E)

Prerequisite: Year IV standing in Computing and Information Systems

Students will carry out a piece of highly independent work, which could be a system development project or an academic research project, under the supervision of a faculty member. A project

report and an oral presentation/demonstration are required upon successful completion of the project. Other deliverables for research projects may be a research paper or research prototype.

COMP 4898-9 Final Year Project (3,0,9) (E)

Prerequisite: Year IV standing in Computer Science
Students will engage in a highly independent problem solving activity under the supervision of a faculty member. Students are expected to gain practical experiences of applying software systems principles and techniques acquired from the Programme to the solution of a real-life problem. The project demands careful planning and creative applications of underlying theories and enabling technologies. A final report and an oral presentation are required upon successful completion of the project.

COMP 7010 Advanced Topics in Computer Science and Information Systems (3,3,0)

Prerequisite: BSc in Computer Science or equivalent
This course studies in-depth the theories and issues in some specialized areas of computer science and information systems that are of current interest.

COMP 7030 Advanced Theory and Methodology for Information Systems Development (3,2,1)

Prerequisite: Research postgraduate student standing
To extend students' knowledge of information systems and development methodology through the study of advanced theories and methodologies, and to examine the critical issues of current IS research, so as to provide a student an integrative perspective of information systems and development.

At the end of the study of this course, students should be able to develop new solutions and models for an information system. They should also have an appreciation of methodological pluralism (that there is not one but many methods and that the 'correct' method is contingent on the problem being studied).

COMP 7040 Advanced Pattern Recognition (3,2,1)

Prerequisite: BSc in Computer Science or equivalent
This course gives students some advanced topics in the areas of pattern recognition, computer vision and image processing.

COMP 7050 Advanced Topics in Distributed Computing (3,2,1)

Prerequisite: Postgraduate standing
This course offers a study of the design and implementation issues of distributed computing systems. It revisits the designs and approaches used by traditional centralized systems and proposes relevant solutions based on the distributed computing environment. The topics for discussion include distributed computing in communications, process management, synchronization, consistency and replication, fault tolerance, file systems and case studies.

COMP 7060 Advanced Topics in Intelligent Systems (3,3,0)

Prerequisite: Research postgraduate student standing
This course deals with the advanced topics in intelligent systems. Through a systematic training, students will be able to conduct independent intelligent systems research and develop theoretical or practical solutions in some selected domains, such as learning, planning, self-organization, soft-computing, adaptive computation, evolutionary computation, and intelligent agents.

COMP 7070 Advanced Topics in Machine Learning (3,2,1)

Prerequisite: Postgraduate standing
This is an advanced course that will not only focus on the recent literature on the applications of machine learning to problems from a range of different areas, including image/signal processing, robotics, information retrieval and data mining, but also let students learn the state-of-the-art learning theories and techniques based on statistics, neural networks and information theory.

COMP 7080 Postgraduate Seminar (1,0,0)

Students are exposed to the current IT research, development and practice via seminars, IT forum and presentations given by academic scholars, IT professionals and research students. After completing this course, students will: (1) learn the frontier knowledge of IT research and development; (2) broaden their mind; (3) understand the current IT practice; and (4) share their experience with academic scholars and IT professionals.

COMP 7090 Ubiquitous Computing (3,2,2)

Prerequisite: Postgraduate standing
This course discusses the concepts of ubiquitous/pervasive computing. This includes location-based services provided by the ubiquitous environment, positioning techniques for localization, and networks and systems issues for the design and implementation of ubiquitous/pervasive computing systems and applications. Students need to understand the key components, devices and technologies involved and recognize research issues in ubiquitous computing. This course also provides an opportunity for students to gain hands-on experiences in building applications that realize the usefulness of ubiquitous computing.

COMP 7100 Computer Graphics and Animation (3,2,2)

Prerequisite: Research postgraduate student standing
Students will learn (1) the mathematical foundation and algorithms for creating computer graphics including transformation, rendering, and (2) the algorithms for animation. Students will also gain practical experience on these topics by using graphics application programming interface (API) and develop a graphics application prototype.

COMP 7310 Technologies and Programming for Information Systems (3,2,1)

This course aims at introducing the web programming and database techniques for information system development. Through this course, students will learn: (1) how to install, manage and maintain the information systems, and (2) the web programming and the database techniques, as well as hands-on experience, for developing information systems.

COMP 7320 Professional Methodologies for Information Systems (3,2,1)

Prerequisite: Postgraduate student standing
This course provides students with an integrative perspective of information systems and development by introducing different kinds of information systems and describing the underlying methodologies for such development. Topics include, but not limited to: model of information system, integrated view of different methodologies, methodology framework, soft systems methodology, and object-oriented methodologies. Through this course, students will be able to develop new models and solutions for an information system

COMP 7330 Information Systems Security and Auditing (3,3,0)

This course aims to introduce students to the fundamental concepts and techniques in computer and network security, and giving students an overview of information security and auditing, and to expose students to the latest trend of computer attack and defense. Other advanced topics on information security such as mobile computing security, security and privacy of cloud computing, as well as secure information system development will also be discussed.

COMP 7340 Enterprise Application Architecture and Integration (3,2,1)

Prerequisite: COMP 7320 Professional Methodologies for Information Systems
This course aims to cover key concepts and design principles related to enterprise application architecture and enterprise application integration. It includes topics like layering structure, business logic organization, patterns for object/relational access layers, model-view-control patterns for Web, message-based enterprise application integration, and recent advances in enterprise application architecture.