

Topics include distributed system models, computer clusters, virtualization, datacenters, design of cloud computing platforms, and service-oriented architectures. Students will also acquire hands-on experience in cloud programming.

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

Prerequisite: MATH 1005 Calculus, MATH 2005 Probability and Statistics for Computer Science

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)**

Prerequisite: COMP 2026 Problem Solving Using 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)**

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 Social Computing and Web Intelligence (3,3,0)**

Prerequisite: COMP 2026 Problem Solving Using Object Oriented Programming, MATH 2005 Probability and Statistics for Computer Science

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

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

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 (3,3,0) and Business Intelligence**

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 (3,3,0) Informatics**

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 (3,3,0) Computer Science**

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, etc.), or a particular algorithm design paradigm (e.g. randomized algorithms, parallel algorithms, etc.).

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

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

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 in business and healthcare contexts.

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

Prerequisite: COMP 2007 Object Oriented Programming, 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)**

Prerequisite: COMP 2026 Problem Solving Using Object Oriented Programming

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 4106 E-Business Technology (3,3,0)**

Prerequisite: Year III standing in Computer Science

This course introduces the use of technology in many aspects of a business, with particular emphasis on concepts and practices for modeling, specifying and integrating within-enterprise and B2B business processes. Business processes related to customer relationship management, enterprise resource planning, supply chain management, etc. will be covered. Students gain a heightened awareness of emerging technologies and trends in e-business.