**COMP 4046   Information Systems Control and   (3,3,0)
                Auditing**
Prerequisite: COMP 3015 Data Communications and
                Networking
This course provides the theory, techniques and practical issues related to computer-based information systems control and auditing. Students will learn the concepts, approaches, and techniques to carry out information system auditing and security controls in organizations.

COMP 4047   Internet and World Wide Web   (3,2,1)
Prerequisite: COMP 3015 Data Communications and
                Networking
Students will learn the principles of the Internet and the World Wide Web, study some real-world Internet systems and applications, and learn some current topics.

**COMP 4055   Medical Image Processing and   (3,2,1)
                Applications**
Prerequisite: COMP 2015 Data Structures and Algorithms,
                MATH 1005 Calculus, MATH 2005 Probability
                and Statistics for Computer Science
The course focuses on two areas. First, students will learn some fundamental image processing techniques and the characteristics of different types of medical images. Students are then able to apply different classical image processing techniques to different types of medical images. In the second part, students will learn the structure and components of a medical imaging management system. Students will be able to apply the picture archiving and communication systems to the medical images.

COMP 4056   Nature-Inspired Computing   (3,2,1)
Prerequisite: COMP 2015 Data Structures and Algorithms,
                MATH 1205 Discrete Mathematics
This interdisciplinary Computer Science course provides an introduction to some interesting concepts, principles, and applications of computing, which are inspired by processes and phenomena found in nature. It offers students opportunities to appreciate those concepts, develop new insights and methods, and turn them into practical problemsolving and modeling applications.

COMP 4057   Distributed and Cloud Computing   (3,3,0)
Prerequisite: COMP 3015 Data Communications and
                Networking
This course introduces the techniques underlying the design and engineering of distributed systems and cloud computing systems. 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   (3,2,1)
                Analysis 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   (3,2,1)
                Language**
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)
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 2007 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   (3,3,0)
                Systems 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), or a particular algorithm design paradigm (e.g. randomized algorithms, parallel algorithms).

**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.