MSIS curriculum information up to AY2017-2018 intake

Foundation Courses

These courses reflect a minimum level of prerequisite information systems knowledge and are designed to provide a common foundation in the field of information systems. They prepare students for specialised Elective courses.

CI6202 Information Architecture and Design

This course examines information architecture as an approach to information systems design. Issues related to user interface design, users, usability and evaluation will be covered, and students will learn to apply these techniques to the Web.

CI6203 Software Engineering

Through this course students will learn about software process models and traditional software engineering methods. It also covers the fundamentals of object-oriented programming, as well as object-oriented analysis and design concepts and techniques. Students will gain hands-on experience in designing patterns and object-oriented frameworks and try software testing.

CI6204 Software Project Management

This course is an introduction to software project management concepts and management. Core issues that will be looked at include Project communication and documentation; Risk Management; and Best Practices. Students will examine case studies in project management to better grasp the various areas of software project management.

CI6205 Database Systems

This course will look at relational database models, database design, and data modelling as an introduction to database systems. Students will learn to manage database environments, database administration, transaction processing, client-server processing, and security, amongst other procedures.

CI6206 Internet Programming

This course deals with basic networking concepts and the handling of Internet communication protocols such as TCP/IP, HTTP, FTP, RTP, etc. Students will also learn Advanced Web page development with JavaScript, along with Server-side development technologies such as JSP and Java servlets. Security issues including threat identification, security strategies, encryption and authentication will also be explored.

CI6207 Human Computer Interaction - Users, Tasks and Designs

In this course students will be given an introduction to general design and usability issues, with respect to key cognitive and physical human capabilities and their relations to the design of usable and useful systems. The course will also look at international design heuristics and guidelines from three perspectives: cultural, ethical and legal, and relate design and usability methods to the wider systems development process.
**CI6208 Research Methods and Data Analysis for Information Professionals**

This course examines the concepts, issues and techniques related to research for information professionals. Topics such as problem definition, research design, data collection methods and procedures, as well as data analysis will be covered. Both qualitative and quantitative approaches will be considered. Students will also be reviewing research literature pertinent to information professionals in areas such as systems development and user evaluations.

**Elective Courses**

These courses cover a variety of areas in the field of information systems and range from technology-oriented to management-oriented ones. MSIS students select them based on their individual learning goals and career objectives.

**CI6220 Usability Engineering**

This course serves as an introduction to a range of user-centred tools, methods and techniques for building usable and useful interactive systems complementing other software development approaches. Students will learn about creative design aids and usability evaluation aids, as well as experimental evaluation methods that involve qualitative and quantitative methods.

**CI6221 Information Visualisation**

This course will examine the study of concepts, models and examples for improved information visualisation. Students will look at representation and interpretation data, as well as different forms of document visualisation such as TileBars, galaxies, themescapes, and Kohonen maps.

**CI6222 Mobile and Ubiquitous Applications**

Data communications and the networking concept have risen in today’s technology-centered society, hence this course addresses such mobile and ubiquitous applications. The course will look at technologies such as wireless networking, the development of mobile device applications, wireless network programming and messaging, and location-based wireless applications like GPS.

**CI6223 Interactive Media Development**

This course will focus on multimedia, hypertext, hypermedia and their applications. It will cover multimedia basics (ie. text, graphics, animation, audio, video and file formats); multimedia standards and development tools, technologies and languages; and the development and distribution for multimedia. Issues like media rights management and the technologies and techniques for multimedia content management will be examined and discussed.

**CI6224 Software Testing and Performance Analysis**

This course will introduce to students basic software test process and principles, including testing techniques, using computer-aided software testing tools, and how to cope with risk management and disaster recovery. Case studies in software performance analysis will be up for discussion and evaluation.
CI6225 Enterprise Applications Development

In this course students will learn to design and implement enterprise application systems, through enterprise component technologies such as EJB, CORBA and Microsoft.NET. The course content also looks at web services and web server administration. Students will examine key examples of enterprise application systems, namely information and knowledge portals and digital libraries.

CI6226 Information Retrieval and Analysis

This course will equip students with relevant knowledge about representation, storage, and access to very large digital document collections, as well as information retrieval models. Indexing and retrieval techniques and the evaluation of information retrieval systems are also key skills that will be covered. In addition, students will learn about text and Web mining in intelligent information extraction and integration.

CI6227 Data Mining

This course revolves around the knowledge discovery process via data mining. Students will learn about the appropriate statistical techniques involved, and personally handle data mining software and tools. They will also get to apply data mining to complex data types.

CI6228 Managing Information Systems

This course explores fundamental IS concepts from an organizational and managerial perspective. Students will examine the organizational impacts, business value, and technological components of IS, while learning how to manage Global IS and integrate emerging information technologies.

CI6229 Management of Information Systems Outsourcing

This course provides an overview of management of IS outsourcing, which includes planning and management of IS outsourcing, sourcing strategies, models, related legal issues, and managing global IS outsourcing. Students will also examine risk mitigation practices and best practices and case studies of IS outsourcing.

CI6230 Information Systems Security

In this course students will look at basic security concepts such as confidentiality, amongst other protection methods and security protocols. The course also looks at secure operating systems and applications and anti-hacking security tools.

CI6231 Security Policy and Strategy

This course will examine survivability and information security, and explore strategies for analyzing and managing risk. Through best practices for enhancing organizational survivability and configuration management and control, students will learn about adequate policy formulation and implementation.

CI6232 Intrusion Detection

Through this course students will learn the methods of attacking and defending a network. They will gain hands-on experience in designing secure information infrastructure, and pick up intrusion
detection and network monitoring techniques to combat worms, viruses and other malware. Principles of penetration testing for assessment of system security, cybercrime, investigative techniques, and ethical, legal and privacy issues will also be examined.

**CI6233 Information Systems Leadership**

This course prepares individuals for leadership positions in the IT field. Key concepts, frameworks and methods in the domain of IT management are covered including IT leadership models, managing the IT function, IT operations, IT budget and cost modelling and IT workforce management. Research literature and pertinent case-studies in IT leadership will also be reviewed.

**CI6234 Advanced Human Computer Interaction**

CI6234 is a follow-up course to H6611/CI6207 (Human-Computer Interaction, HCI). It is strongly encouraged that students should have taken either H6611/CI6207 or CI6202 (Information Architecture & Design), which provides students with an introduction to basic concepts in human-computer interaction. Besides improving user experiences with interactive devices and systems, this course focuses on applying technologies to achieve natural interaction between human beings, machines and their environments. This course will examine scenarios of use on potential applications where HCI can be applied, such as videogames, animated TV series or audiovisual productions, to name a few, and general domains of applications such as Smart Cities (e.g. information points) and Health (e.g. ergonomics, tele-assistance, applications for aged and disabled).

**CI6235 Applied Artificial Intelligence**

In this course, fundamentals of Artificial Intelligence and machine learning algorithms will be covered. Topics in this course also include contemporary Artificial Intelligence algorithms like the popular Deep Learning. The key emphasis of this course is the application of such algorithms, hence there will be extensive coverage into how a combination of algorithms can be applied to address problems that cannot be easily solved through conventional coding approaches. There will be extensive hands on course work into the development and application of such algorithms. This will be done through laboratory sessions and sizeable project development.

**CI6299 Critical Inquiry in Information Systems**

This course is an overview of how to design and conduct research projects in the area of information systems. Students will learn the processes in research study design, preparation of proposals and manuscripts, intellectual property and ethics, in addition to being introduced to the main types of research methods – though with a more in-depth examination of more useful methods, to address information systems problems.

**Dissertation**

Harnessing the knowledge, skills and attitudes acquired in the programme and applying them to solve information systems-related research problems, create new knowledge or develop new information system products or services is an essential part of the programme. In this respect, each student is mentored by a staff member in an in information systems research project leading to a dissertation of up to 15,000 words. The project can be in any information systems.