CIS-GEN COMPUTER&INFO SCIENCE (CIS)

CIS 1003 Information Systems in Organisations and Society (3-1-3)
Understanding the essential role of information systems in support to organizations and society. Exploring the main components of an information system through the study of real case-based scenarios. Understanding the information systems underlying business processes, data, applications, and information technology. Identifying the importance of emerging technologies and their use in information systems to benefit businesses and individuals.

CIS 1103 Hardware and Networking (2-2-3)
Introduces the fundamental computer systems hardware, architecture and various components. Provide a comprehensive understanding of modern computer systems, by covering variety of computer devices, and peripherals. Explore the various communication techniques based on the network layer model including application, transport, network and link layers. Develop an understanding of peer to peer networking, computer network security and computer network management.

CIS 1203 Web Technologies (2-2-3)
Introducing the basic concepts of the World Wide Web and its underlying technologies. Defining the functions of web browsers and web servers for accessing resources over the internet. Providing a comprehensive understanding of various multimedia components such as 2D graphics audio and video. Creating and testing webpages and websites using HTML, CSS, and Web-authoring tools that integrate multimedia elements.

CIS 1303 Data and Information Management (2-2-3)
Examining the concepts of databases and database modeling and development. Topics include basic concepts of databases, 3-stage modeling and design methodology, Relational Database (RDB) concepts, conceptual data modeling using ERD, from ERD to RDB, data normalization, and SQL. Using hands-on activities, students will learn about designing a database, transforming into a normalized-relational model, and using SQL to define and manipulate data.

CIS 1403 Fundamentals of Programming (2-2-3)
Exploring the fundamental concepts of procedural programming using the Java language. Topics include algorithms, variables, control statements, and methods. Throughout the course a series of progressive assignments help students gain hands-on experience in designing and writing algorithms to solve a computational problem, implementing programs within an integrated development environment, and explaining how programs implement algorithms in terms of instruction processing, program execution, and running processes.

CIS 2003 Statistics and Probability (3-1-3)
Discussing the fundamental concepts of probability and statistics with an emphasis on their application in Information Technology. Developing skills in probabilistic and statistical intuition for application in the discipline. Exploring the elements of descriptive statistics, discrete probability, probability distributions, sampling and inferential statistics, and their application in the field of computing and associated domains.
Prerequisites: LSM 1003 or LSM 1113 or MTH 1113

CIS 2103 Principles of Information Assurance, Security and Privacy (2-2-3)
The course describes the key concepts related to security and assurance of information assets. It explores information risks, security frameworks and controls, and relevant legal, ethical, and professional issues. It also discusses security-related activities, such as inspection and protection of information assets, detection of and reaction to threats, and examining pre- and post-incident procedures. The students will be designing and implementing an information assurance plan to protect an organisation's information.

CIS 2203 Applied Discrete Maths (3-1-3)
Introduce the functional computational aspects of a variety of data structures including sets, relations, discrete functions, graphs and trees. Engage with formal systems, including propositional and predicate logic, sequences, summations, and mathematical induction. Develop the capacity to read and construct valid proofs of the properties of algorithms.
Prerequisites: LSM 1003, ICT 2013

CIS 2303 Systems Analysis and Design (3-1-3)
Describing current systems analysis and design approaches. Covering key software engineering knowledge areas, including system development methodologies, requirements gathering and analysis, and modeling. Producing solutions for real-world mid-sized problems through analyzing their requirements and preparing the transition to design within an agile methodology. Using the Unified Modeling Language (UML) notation throughout.
Prerequisites: CIS 1303

CIS 2403 Object Oriented Programming (2-2-3)
Building upon Programming Fundamentals, this course covers the basic and intermediate concepts of object-oriented programming. Topics include classes, encapsulation, overloading, overriding, exception handling, and built-in collection frameworks. Throughout the course a series of progressive assignments help students gain hands-on experience in implementing UML class diagrams (Generalization/ Specialization, Association, Aggregation) using Java.
Prerequisites: CIS 1403

CIS 2806 Work Related Experience I (0-15-6)
This course is designed as a framework within which a range of work related learning activities can be accommodated to meet defined learning outcomes. It gives the flexibility, for example, for students to learn from work experience and to receive an understanding of business and technology and its real life operations (where possible in their chosen major topic) or to undertake an industry based project which meets the same outcomes.
Prerequisites: CIS 2303, WPR 0100

CIS 2903 Operating Systems (2-2-3)
The course introduces operating system concepts, architecture, platform and features. Topics include process synchronization, interprocess communications, processor scheduling, memory management, virtual memory, I/O, and file systems. Open Source operating system will be used to perform installations, managing storage, managing files, administering users and group, installing and configuring local services.
Prerequisites: CIS 1103

CIS 3003 Human Computer Interaction (3-1-3)
Exploring the fundamental concepts of human-computer interaction. Developing skill in understanding usability and testing, user-centered design, human cognitive principles and models, information and interactivity structures, interaction styles and techniques. Applying dialogue method, response time and display rates, information presentation, interactive devices, information search and visualization and hypermedia to develop an interface of computer-based solutions.
Prerequisites: CIS 2303

CIS 3203 Enterprise Architecture (3-1-3)
Develop advanced skills and knowledge about the foundational concepts of enterprise architecture and how it serves to integrate strategic, business, and technology planning methods to support enterprise-wide information technology resource development in the context of business requirements. Evaluate principles and best practices of enterprise architecture, and develop a comprehensive approach to articulating the subject matter involving real-world case studies.
Prerequisites: CIS 2303

CIS 3303 System Architecture and Integration (3-1-3)
Introduce the concept of architecture in the context of system integration and architecture reflecting IEEE standard 1471. The architecture helps justify how complex systems can be represented using architectural views and how this can facilitate system evolution over time. The system integration addresses the middleware platforms in addition to business process integration and service integration as well as the data and information integration.
Prerequisites: CIS 2303

CIS 3806 Work Related Experience II (0-40-6)
Working with staff from the host organization and support from a HCT mentor, students have an opportunity to apply computing practices and skills acquired during their studies in a workplace setting. The course is driven by an evidence#based portfolio approach to assessments and encourages students to critically reflect on their knowledge, skills and capabilities within the context of a workplace#centered project. This course requires students to demonstrate professional behavior, including adherence to ethical, legal and security standards, as applicable in a professional work environment.
Prerequisites: CIS 2303, WPR 0100

CIS 4103 Research Methods for Emerging Technologies (2-2-3)
The course provides the students with an opportunity to investigate the most recent advances in IS/IT by selecting an emerging technology, describing how it works, analysing its strengths & weaknesses and determining what impact it is likely to have in the students' chosen major. The students will understand how to select a research topic, write a research question, conduct a literature review, analyse & properly attribute outside sources and write an abstract.

CIS 4203 Information Technology Strategy and Governance (3-1-3)
Provides an understanding of IS Strategy and Governance, decision rights, strategic frameworks and mechanisms, alignment of strategy, governance and performance with related change management issues and schemes. The course highlights the fact that IS strategy and governance refers to allocation of responsibilities for the control of IS that enable accountability, participation, predictability and transparency. The course emphasises the responsibility of the board of directors and executive management in an organisation, and their integral role in enterprise governance.

CIS 4403 Cloud Computing (2-2-3)
Discuss classic data centres and how they can be migrated to a cloud solution. Examine cloud infrastructure solutions and build virtualised servers, desktops, applications and services. Implement a private cloud using the specification of a particular organisation.
Prerequisites: CIS 1003

CIS 4603 Project Management (2-2-3)
The course develops an understanding of the basics of project management concepts and methods. It examines the project management framework, including key terminology, project management context, and project management processes. The students will be demonstrating skills in managing budgets, schedules, and human/material resource allocations activities associated with project management quality, communications, risk and procurement.

CIS 4613 System Administration & Maintenance (2-2-3)
Covering the deployment and maintenance of modern computer systems. Topics include applications installation, configuration, and maintenance, including client-server services, content management and deployment, server administration and management, and user/group management. Use appropriate and emerging technologies to improve the performance of computer systems and discover the cause of performance problems in a system.
Prerequisites: CIS 2903

CIS 4703 Blockchain Applications and Coding (2-2-3)
Discusses the principles, framework, architecture, security, various algorithm, and data structure of Blockchain system. The course will examine the Blockchain solution components, including wallets, ledgers, participants, consensus, security, and smart contracts. The practical part of the course covers crating accounts, smart contracts, start and stop mining, private key files, building a block-chain network and deployment plan. The course will discuss number of use cases from different industries including supply chain, banking, and insurance.
Prerequisites: CIS 2403

CIS 4713 Virtual Reality and 3D Virtual Environments (2-2-3)
The course covers emerging technology of Virtual Reality (VR). Students learn key concepts about VR systems, applications, simulators, and their impact on future digital systems and user interfaces. They examine multiple modal interaction, visual-auditory-haptic, interaction immersion and imagination, visual computation and environmental modeling. They also lean geometric behavior and physically based simulation; management of large scale environment, VR development tools, augmented reality, mixed reality, digital entertainment.

CIS 4863 Special Topics In Computer Information Science (4-0-3)
Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit.

CIS 4906 Capstone Project (Integrative & Consultancy Focused) (2-6-6)
Applying and integrating the knowledge of the development life cycle project management, development tools, and skills gained throughout the major to plan, analyse, design, and build a fully functional information system component to solve a business problem for organizations. Demonstrating an understanding of the skills in documenting and presenting the project to company representatives
Prerequisites: CIS 4603

CIS 4913 Capstone Project I (1-3-3)
Students form teams to explore new and innovative ideas and define their project. They apply their knowledge of the development life cycle, project management, development tools, and skills gained throughout the program to propose, plan, analyse, and design an innovative IT/IS solution in response to an identified organizational or community need. Students complete project milestones and outcomes under supervision of a faculty and an industry mentor. Students are evaluated on each project phase and their ability to communicate, work in a team, and apply project management tools.
Prerequisites: CIS 2303
Corequisites: CIS 4603

CIS 4923 Capstone Project II (1-3-3)
The Capstone project is carried forward from the previous semester with student teams moving to the development, testing, and implementation of their project designs. Students continue to complete project milestones under the supervision of faculty and an industry mentor. They are evaluated on their ability to develop solutions based on their design, test the proposed solutions, and implement them. Students are expected to demonstrate skills in knowledge integration, application/system development, entrepreneurship, communication, self-management, and collaborative team work.