

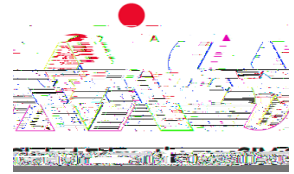
database model; Processing relational databases with Structured Query Language (SQL) and its procedural extension (PL/SQL); Principles of semistructured database model; Processing of semistructured databases with XQuery and XPath; Design and implementation of distributed database systems; normalisation of relational databases; Transaction management and recovery in database systems.

CSCI236 - 3D Modelling and Animation

This subject provides students with a hands-on introduction to the use of computers for developing models of three-dimensional objects and viewing them in 3D as still images and animations. Topics covered include basic modelling primitives, from polygons to spline surfaces; tools to modify simple objects; surfacing concepts such as textures and bump maps; basic lighting of scenes; the animation process including key frames, articulated structures, camera movement and morphing; lighting effects such as volumetrics and radiosity. The subject uses the industry standard software package LightWave.

CSCI251 Advanced Programming

The subject develops a thorough understanding of programming features, which are implemented in the C++ programming language. It comprises of four main components, namely procedural-based, object-based, object-oriented

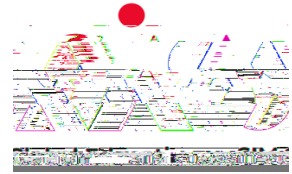


CSCI316 - Big Data Mining Techniques and Implementation

The subject considers the problems related to data mining techniques and implementation in a Big Data environment. The topics include data pre-processing techniques, pattern, association and correlation discovery; classification and clustering; stream and real-time processing techniques; and post-processing techniques like outlier detection, as well as statistical, proximity, and clustering based approaches. Laboratory classes and hands-on programming exercises related to these topics will provide the students with the abilities to design and implement Big Data algorithms and to use already existing software libraries. The subject also addresses the problems of scalability, selection of appropriate implementation techniques, and performance aspects when mining Big Data.

CSCI317 Database Performance Tuning

The subject addresses the problems related to performance of relational database systems. In its introductory part, the subject presents an internal architecture of relational database servers and typically available performance measurement and performance tuning software tools. Two groups of solutions are investigated: structural and operational. The structural solutions presented in the subject include denormalization of relational tables, indexing,



CSCI336 Interactive Computer Graphics

Introduction to computer representation of lines and points; mathematical models; transformations in 2 and 3 dimensions; homogenous coordinate systems; fill algorithms; solid modelling; hidden line and surface algorithms; lighting models; and current trends

CSCI356 Game Engine Essentials

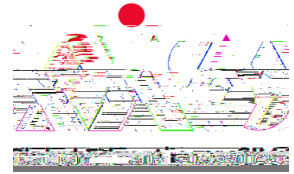
This subject will introduce fundamental concepts and techniques required in the development of games and game engines. Game engine components that will be examined include rendering, collision and physics, artificial intelligence among others. The design and development of these components will be illustrated using appropriate software and application programming interfaces. Among others, topics covered in this subject will include game loops and time management, handling input, cameras, particles, collision detection, rigid-body dynamics, terrain, path-finding, and state machines.

CSCI361 - Cryptography and Secure Applications

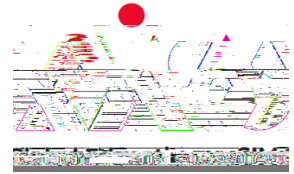
This subject develops the skills and knowledge necessary to identify and address security problems in a variety of simple communication models. Topics covered include: Classical cryptology, Modern secret key cryptography including block (DES, AES) and stream ciphers (RC4), security properties (authentication, integrity, confidentiality, availability), public key cryptography (knapsacks, RSA, Rabin, Elgamal), digital signatures (RSA, DSS, Elgamal), hashing (birthday paradox, Merkle-Damgard construction), MACS's, Key management (PKI, certificates, key establishment/exchange/transport, Diffie-Hellman), Identification protocols, Privacy preserving (mix-nets), Secret sharing. Applications studied include some of: email security, SET, E-payment, E-voting, Fair exchange.

CSCI366 Mobile Multimedia

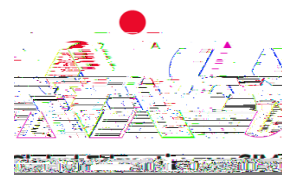
Updated as of 4 Jan 2025



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CSIT214 - IT Project Management



ISIT204 - Principles of eBusiness

This subject aims to provide students with an understanding of eBusiness fundamentals. Today most businesses compete in a global environment and a sound strategy for online business is essential to facilitate this. This subject covers key areas of eBusiness, including: business-to-consumer, business-to-business and business-to-government electronic commerce (EC); online business models and electronic payment systems (EPS) and EC technology basics. Standards, regulation and policy, security and social and economic issues will also be considered in the contexts of business Intranets, Extranets and the Internet. The subject also provides an introduction to the 'Patterns for eBusiness' approach to eBusiness analysis and design.

ISIT207 Frontend Web Programming

The subject provides students with a practical knowledge of web programming concepts and techniques and user interface design techniques used in the creation of dynamic web sites. The subject will provide students with an opportunity to develop an understanding of the principles of client and server-based scripts as well as user-interface constructs. Students will also be able to apply these principles. The subject provides an in-depth look at the object-oriented features of web programming. Students will have exposure to appropriate software development tools to complete a data cycle of input data store data output data via the web.

ISIT219 Knowledge and Information Engineering

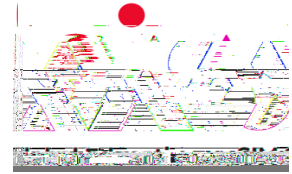
This subject explores issues in using IT to support knowledge sharing and reuse. Challenges in representing and sharing knowledge in the context of deploying knowledge systems are studied. Additional challenges in heterogeneous IT environments are also examined. The subject presents systematic approaches for knowledge engineering via a contemporary Web and modern information modelling approach. The appropriate application environments, acquisition tools and representation schemes for content management are examined along with their relationship to contemporary issues in Web technology.

ISIT224 Management Information Systems

This subject introduces students to an overview of all the major Information Systems found in a typical business covering systems such as finance, HR, payroll, inventory, sales, CRM, SCM and ERP. Students will be introduced to the processes involved in managing information systems in the contemporary business environment. Students will gain an appreciation of the issues surrounding the strategy and planning of information systems; the strategic, tactical and operational roles of the Chief Information Officer (CIO); the alignment between information systems and business; policy and practice; technology diffusion; operational management; major trends impacting information systems management and how to assess the value of information systems.

ISIT306 Strategic eBusiness Solutions

This subject aims to provide students with an understanding of how to design integrated solutions for eBusiness using a pattern-oriented approach. Enterprises, both large and small, as well as government institutions, are increasingly becoming reliant upon eBusiness infrastructure. Knowing the strategic business and technology principles and practices related to the design process is becoming increasingly important for a given organisation. This subject will cover



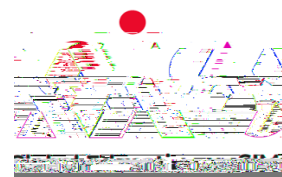
business scenarios including electronic data interchange (EDI), supply chain management (SCM), enterprise application integration (EAI), customer relationship management (CRM), sales force automation (SFA); and knowledge management systems (KM).

ISIT307 Web Server Programming

The subject aims to integrate the previous knowledge which students have gained through subjects on web technologies, web programming and databases to create real-world web applications like shopping carts or advanced form processing systems etc. It also introduces students to open-source programming languages in web development so that they can inexpensively develop sophisticated web applications. Students will become familiar with the integration of programming, databases, web-applications, and structural and object oriented programming.

ISIT312 Big Data Management

The subject addresses the problems of managing and processing of extremely large data sets in a single-server centralized computing systems and in multi-server clustered and distributed computing systems. The topics related to processing of large data sets in centralized environments include the techniques based on the classical data warehouse technologies such multidimensional data model, data warehouse architecture, data warehouse design both at conceptual and logical levels, and data warehouse processing with appropriate specialised query operations. The topics related to processing of large data sets in distributed environments include the techniques that can be implemented on the clusters of inexpensive computing nodes using MapReduce programming model. The subject introduces the students to the real time analytical processing of large data sets with analytical cluster-based distributed data processing systems. Discussion and hands on exercises related to these topics will equip students to meet the challenges in Big Data environments and appreciate the added challenges of dealing with unstructured data. Students will be presented with opportunities to do hands-on work with appropriate commercial tools.



their competitors. Marketing is essential for all organisations including manufacturers, wholesalers, retailers, professional services firms including lawyers, accountants and architects, and non-profit institutions including charities and museums. The subject examines the fundamental concepts underpinning the marketing process and theories relevant to the study and practice of marketing. It serves as a foundation for further studies in business by developing an overview of where marketing fits within organisations and what framework marketing provides for enhancing and enabling the conduct of a business.

MATH221 - Mathematics for Computer Science

MATH221 delivers core skills required for learning in computer science. Such skills include logic, formal proof, formal data structures and relations between these data structures. Realised mathematically as sets, bijections, equivalence classes, and graphs, MATH221 gives students hands-on experience with basic mathematical manipulations of these structures, as well as an exposition on their most fundamental properties.

MGNT102 Professional Communication: Concepts and Practices

MGNT102 introduces the theory and practice of communication in social and professional settings, to develop competencies in a fundamental and important human practice which is also a valuable workplace skill.

This subject focuses on culturally sensitive, respectful, ethical, and effective communication, personally and professionally, using a range of modes and environments. It examines and discusses cultural, organisational, and interpersonal communication processes, and incorporates practical professional skills including presentations and writing for focussed purposes such as academia and social media. Other concepts addressed, which assist in building relationships and understanding, are non-verbal communication, active listening, and feedback.

MGNT110 - Introduction to Management

function for the efficient and effective running of their operations. This subject will introduce students to the various functions involved in managing, as well as the context of management: the organisation. Students will learn key management theories and concepts including organisational culture, social responsibility and ethics, managing groups, motivating employees, planning, managing human resources and employment relations, strategic management, decision-making, supply chain and operations management, leadership and foundations of management control. Students will learn how the different interests between organisational stakeholders affect various management processes, and the implications of managerial decisions on the internal and external environments.

MGNT201 Organisational Behaviour

The subject examines aspects of the social and behavioural sciences that are relevant to understanding human behaviour in work organisations. The focus of the subject ranges from the behaviour and activities of individuals and groups in organisational settings, to understanding complex organisations as a whole.

