CIA - APPLICATIONS DEVELOPMENT (CIA)

CIA 2503 Web Applications Development (3-1-3)
Develop an understanding of Web Applications and their underlying technologies including the role of client-side and server-side scripts. Apply web design practices and methodologies used in creating interactive web-based user interfaces. Apply the concepts of user authentication, personalisation, data validation and persistence to functioning web applications with access to data stored on a server.
Prerequisites: CIS 1203

CIA 2513 Key Components of IoT Architecture for Smart Applications (3-1-3)
Introduces the IoT architecture and the concepts of smart cities. It provides an overview of the basic technologies required for supporting the IoT and how these technologies and devices are used in mobile apps to support smart cities. Learners will gain an understanding of the impact of the IoT on smart cities. The course provides students with the opportunity to develop a mobile application using the IoT devices. It also introduces typical application scenarios in which IoT provides innovative new services to enhance productivity and save costs.

CIA 3003 Introduction to Mobile Applications (2-2-3)
Examine various industry compliant user interfaces as applied to mobile apps. Learn how to pass data between pages and to use the local storage system. Create smart apps that use the location-based services. Design and develop apps that will be deployed to the actual device that is compatible with the technology.
Prerequisites: CIA 2503

CIA 3103 Database Design and Administration (2-2-3)
Apply data modelling, database design and database administration techniques on an RDBMS server. Learn how to use Structured Query Language (SQL) to define, manipulate, and administer data. Develop an understanding of the concept of database administration and define the duties and responsibilities of database administrators.
Prerequisites: CIS 1303

CIA 3113 IoT and Security (3-1-3)
Provides the students with an understanding unique vulnerabilities in IoT systems that are commonly exploited. The course covers the best practices to integrate into product design processes and enhance product security level. It examines emerging threats and learn to think like a “hacker” to gain the skills necessary to create more secure IoT products. It will also teach the student to develop methodologies for assessing risk, integrate defensive tools for mitigating risk, and address future vulnerabilities throughout the product life cycle.
Prerequisites: CIA 2513

CIA 3123 Mobile Game Development (2-2-3)
Commencing with a comprehensive overview of the games development process including important historical perspectives, content creation strategies, production techniques, platforms, genres, character development and gameplay. Developing critical skills for designing and creating interactive online games, including developing a storyline, storyboarding, interface design, integrating audio and video, and ensuring the key game assets meet the specifications as required.
Prerequisites: CIA 2503

CIA 3133 Advanced Application Development (2-2-3)
Covering advanced concepts used to develop enterprise applications. It will provide students with the knowledge and skills needed to write applications that develop and consume secure web services and communicate with databases (e.g. MongoDB). Topics include data formats, SOAP web services, SOAP Protocol, RESTful web service, Micro services architecture and Object Relation Mapping (ORM). AngularJS is used to develop the front-end to consume the web services. Virtualization tools and integration such as Docker will be used to deploy the web services.
Prerequisites: CIA 2503, CIS 2403

CIA 3503 Advanced Object Oriented Programming (2-2-3)
Building upon Object-Oriented Programming, this course covers the implementation of high-quality software using OO techniques. Topics include abstract classes, interfaces, in-built and user-defined generic classes, GUIs with Swing/JavaFX, event-driven programming, multi-threading, and design patterns. Throughout the course a series of progressive assignments help students gain hands-on experience in developing a range of software applications with varying complexities.
Prerequisites: CIS 2403

CIA 4003 Advanced Mobile Applications (2-2-3)
Develop the knowledge and skills required to create multi-threaded mobile apps that perform background task, connect to external data sources and cloud-based back-end services, and control mobile device hardware and sensor. Integrate industry best practices to secure mobile apps. Test and debug mobile apps using virtual and physical devices.
Prerequisites: CIA 3003

CIA 4103 Data Driven Web Technologies (2-2-3)
Examine how to validate user input on both client-side and server, handle exceptions and maintain application state. Learn how to interact with different data sources. Develop advanced skills in the CRUD operations through server-side codes. Implement security principles through user authentication, roles, and user authorization.
Prerequisites: CIA 2503

CIA 4133 Advanced Application Development (2-2-3)
Covering advanced concepts used to develop enterprise applications. It will provide students with the knowledge and skills needed to write applications that develop and consume secure web services and communicate with databases (e.g. MongoDB). Topics include data formats, SOAP web services, SOAP Protocol, RESTful web service, Micro services architecture and Object Relation Mapping (ORM). AngularJS is used to develop the front-end to consume the web services. Virtualization tools and integration such as Docker will be used to deploy the web services.
Prerequisites: CIA 2503, CIA 3503

CIA 4203 Enterprise Database Applications (2-2-3)
Develop a comprehensive understanding of advanced topics pertinent to database management systems (DBMS) and study how they are being applied in a business environment. Examine the advanced concepts used to design, implement and administer database applications on client server configuration. Using different tools, develop forms and reports, control objects and codes for mitigation of data entry errors, and implement security measures.
Prerequisites: CIA 3103

CIA 4403 Testing and Quality Assurance (2-2-3)
Exploring the basic concepts of software quality assurance during all the stages of software development process and quality standard systems used in the field of software industry. Topics include software quality assurance, software quality metrics, software configuration management, functional and structural testing models, software verification and validation, reviews, and writing documentation.
Prerequisites: CIS 2303

CIA 4503 Advanced Object Oriented Programming (2-2-3)
Building upon Object-Oriented Programming, this course covers the implementation of high-quality software using OO techniques. Topics include abstract classes, interfaces, in-built and user-defined generic classes, GUIs with Swing/JavaFX, event-driven programming, multi-threading, and design patterns. Throughout the course a series of progressive assignments help students gain hands-on experience in developing a range of software applications with varying complexities.
Prerequisites: CIS 2403

CIA 4613 Mobile Application Administration (2-2-3)
Develop an understanding of advanced client-side and server-side mobile application concepts. Create hybrid mobile applications using an appropriate mobile server. Examine modern UI frameworks such as jQuery mobile, DOJO mobile and Sencha Touch UI, and server-based authentication. Deploy the mobile application within an enterprise environment.
Prerequisites: CIS 1403