INFORMATION TECHNOLOGY (INFO)

This is a list of the Information Technology (INFO) courses available at KPU. Please note:

- Access to 1000-level courses is limited to Bachelor of Technology in Information Technology, Computer Information Systems Diploma, and Computer Information Systems Certificate students.
- Access to 2000-level courses is limited to Bachelor of Technology in Information Technology and Computer Information Systems Diploma students.
- Access to 3000- and 4000-level courses is limited to Bachelor of Technology in Information Technology students.

INFO 1111 CR-3 (formerly CISY 1105)
Introduction to Computer Hardware and Software
Students will learn general computer hardware and software concepts. They will study the general architecture of the computer and examine hardware components such as microprocessors, memory, motherboards, expansion buses, power supplies, hard disk drives, removable media, peripherals, input/output devices, video, audio, and network interface cards. They will compare differences between hardware used in enterprise, personal and mobile computing devices. Students will also study the functions of operating systems and device drivers and will be provided an overview of popular application software such as word processors, spreadsheets, presentations, and database management systems.

Transferable (refer to transfer guide)

INFO 1112 CR-3 (formerly CISY 1113)
Principles of Program Structure and Design
Students will learn the fundamental logic and structure of computer programs. They will develop skills in different aspects of the problem-solving and programming process including analyzing requirements, designing solutions, coding, testing and writing documentation with emphasis on structured programming and modular design techniques. Students will be required to design and implement a software application.

Transferable (refer to transfer guide)

INFO 1113 CR-3 (formerly CISY 1212)
Systems Analysis and Design
Students will study current strategies, methodologies and techniques of systems analysis and design with an emphasis on the role of systems analysts in an organization and collaboration within the overall process. Students will learn how to elicit general information system requirements, perform object-oriented system analysis and design, and generate user documentations. Students working in groups will analyze and design small information systems using object-oriented methodology. Students will examine from an ethical perspective issues specific to information technology professionals, such as intellectual property, access, security and protection of private information, and codes of conduct.

Transferable (refer to transfer guide)

INFO 1211 CR-3 (formerly CISY 1213)
Operating Systems Principles And Applications
Students will learn the fundamentals of operating systems and system utilities. They will study the internal structures and operating principles common to all computer operating systems including processes, threads, memory management, file systems, and input/output systems. They will examine common multi-user, multi-tasking operating systems such as Windows, UNIX and Linux.

Prerequisites: INFO 1111
Transferable (refer to transfer guide)

INFO 1212 CR-3 (formerly CISY 1215)
Networking Technologies I
Students will learn the fundamental architecture, functions and components of computer networks. They will build local area networks with routers and switches and implement Internet Protocol (IP) addressing schemes.

Prerequisites: INFO 1111
Transferable (refer to transfer guide)

INFO 1213 CR-3 (formerly CISY 1218)
Web Application Development
Students will learn the operating principles of the World Wide Web and its relationship with the Internet. They will learn the client-server model, Internet protocols, domain names and URLs, websites and Web hosting. They will also learn HTML, CSS, JavaScript and XML. Students will program both in client and server-side environments and develop data-driven Web applications. They will also learn to deploy applications on web hosting servers.

Prerequisites: INFO 1112
Transferable (refer to transfer guide)

INFO 1214 CR-3 (formerly CISY 1220)
Discrete Mathematics for Information Technology
Students will learn the basic mathematical concepts which form the foundations of computing systems. They will be able to apply mathematical logic and methods to software development. They will learn the principles and applications of discrete mathematics, data organization and data representation.

Prerequisites: Math 11 Foundations with a C+ or Math 11 Pre-Calculus with a C or equivalent
Transferable (refer to transfer guide)

INFO 2311 CR-3
Networking Technologies II
Students will learn the operation details of routers and switches in small to medium size computer networks. They will acquire skills for configuring and troubleshooting routers and switches. They will also develop skills in resolving common issues which exist when routing between different protocols.

Prerequisites: INFO 1212
Transferable (refer to transfer guide)

INFO 2312 CR-3 (formerly CISY 2314)
Database Management Systems
Students will learn the concepts and theory of database models, with particular emphasis on the relational model. They will learn and practice database designs utilizing Entity-Relationship Modeling, functional dependencies, and database table normalization. Students will learn Structured Query Language (SQL) and use SQL statements to design, query and maintain databases.

Prerequisites: INFO 1112
Transferable (refer to transfer guide)

INFO 2313 CR-3 (formerly CISY 2411)
Object-Oriented Programming
Students will learn the principles and concepts of object-oriented programming. They will learn class definition, objects, object interaction, inheritance, polymorphism, interface, abstract classes, and exception handling. They will also learn event-driven programming and object-oriented analysis and design.

Prerequisites: INFO 1112
Transferable (refer to transfer guide)

INFO 2411 CR-3
Foundations of Computer Security
Students will learn fundamental concepts, theories, methodologies and techniques of computer security. Students will learn computer security techniques such as encryption methods, public key cryptography, hash function and signature schemes, key exchange protocols, authentication and access control methods. Students will also develop practical implementations of cryptographic techniques and learn how to apply them in real-life scenarios. Students will complete a project related to computer security and privacy.

Prerequisites: INFO 1112 and INFO 2311
Transferable (refer to transfer guide)

INFO 2412 CR-3 (formerly CISY 2414)
Management of Information Systems
Students will learn information system management in the global economy. They will learn how to plan information systems and design corporate information technology architectures. Students will also learn how to manage corporate information resources and how to select technologies for developing effective information systems. They will be introduced to issues in managing systems that support knowledge-based work and managing information system security.

Prerequisites: INFO 1113
Transferable (refer to transfer guide)

INFO 2413 CR-3 (formerly CISY 2415)
System Development Project
Students will work on real-world computer information system projects on a team basis. They will integrate computer and system concepts learned in the first two years of the program to analyze project requirements, design and implement a software based information system using appropriate tools.

Prerequisites: INFO 2313
Transferable (refer to transfer guide)

INFO 3110 CR-3
Professional Communications in Information Technology
Students will address the activities and techniques for developing proposals, specifications, user guides, reports, memoranda, executive summaries and other documentation commonly used in information technology. Students will present a variety of individual and group written and oral communication assignments, reflecting current Information Systems models.

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 3120 CR-3
Web Programming with Java
Students will learn the syntax, resources and utilities package of Java related to web applications. Students will also examine web design principles, apply their knowledge to construct web components, including Java Server Pages (JSP), Servlets and JavaBeans for both Internet and Intranet environments, and implement dynamic web applications using a Java web server and a relational database management system.

Prerequisites: 30 credits of 1100-level or higher courses, or permission of the instructor

INFO 3135 CR-3
Advanced Web Application Development
Students will learn PHP and MySQL and use them to develop dynamic, secure and commercially usable websites. They will learn the basics of PHP and MySQL and will also learn how to access the data in a MySQL database through the Web using PHP. The students will be able to develop shopping carts and Web forums using PHP and MySQL.

Not Transferable

INFO 3150 CR-3 (formerly CISY 2413)
Object-Oriented Software Engineering
Students will learn the methods of identifying system requirements and producing object models and designs based on the requirements. They will learn the concepts of Unified Modeling Language (UML). They will identify use cases and expand them into object-oriented designs. Students will use the concepts of software engineering to analyze, design and implement software systems. The students will also be introduced to the concepts of Agile Software Development.

Prerequisites: Acceptance into Bachelor of Technology in Information Technology
Not Transferable

INFO 3160 CR-3 (formerly INFO 4220)
Network Operating Systems
Students will learn the principles, techniques and strategies used in planning, installing, testing, and administering a server operating system. The course covers creating and managing users using Active Directory, installing and configuring Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), Printer Server, Internet Information Services (IIS), Web Server, and a Virtual Private Network (VPN). Students will be required to plan, design, and install an application server simulating real-world scenarios. Students will have hands-on experience in installing, troubleshooting, fine-tuning, and administering a server operating system.

Prerequisites: Acceptance into Bachelor of Technology in Information Technology
Not Transferable

INFO 3170 CR-3
Security of Enterprise Networks
Students will learn the fundamentals of network security and the principles of firewalls and Virtual Private Networks (VPN). They will learn how to identify network security threats. They will also learn how to select and deploy firewwalls and manage VPNs.

Not Transferable

INFO 3180 CR-3
Wireless Networks
Students will learn the concepts and practical skills of wireless local area networks (WLANs). They will learn the fundamentals of radio frequency (RF) signals, mathematical skills required in RF signal power calculations, wireless antennas, antenna accessories, and spread spectrum technologies. The students will also learn WLAN infrastructure devices, WLAN organizations and standards, WLAN network architectures, wireless site survey and WLAN troubleshooting techniques.

Prerequisites: Acceptance into 3rd-year of the BTech program
Not Transferable

INFO 3210 CR-3
Distributed Systems
Students will learn principles, techniques and strategies used in design and implementation of distributed applications and system solutions that are robust, scalable, and secure. Students focus on modeling distributed systems and building distributed objects using .NET framework. Students will be required to develop a distributed business solution using C# and .NET Remoting.

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 3225 CR-3 (formerly INFO 3220)
Web Multimedia
Students will learn the different types of multimedia (e.g. text, images, sound, animation and video) required in website development. They will learn the theoretical foundations and the practical tools for creating graphics, sound, animation and video content that will be used in websites, as well as multimedia design considerations.

Prerequisites: Acceptance into Bachelor of Technology in Information Technology
Not Transferable

INFO 3230 CR-3
Advanced Object-Oriented Application Development
Students will learn to use object-oriented methodology to analyze, design and implement real-world software applications. Students will learn the best practices for iterative software development recommended by the Unified Process (UP). Student will learn the advanced features of the Unified Modeling Language (UML) in modeling distributed software applications. Students also will learn the concepts of software design patterns and how these patterns can be used to create flexible and extensible software.

INFO 3235 CR-3
Software Quality Assurance
Students will learn the essential features involved in developing timely, cost-effective and high-quality software products that meet the user's requirements. They will examine the effective deployment of quality assurance procedures throughout the entire software development process. They will learn the concepts of Total Quality Management (TQM), the development of quality assurance plans, the implementation of verification and validation functions, the selection of tools to support quality assurance, the application of software metrics to measure quality, and the International Standards Organization (ISO) certification process.

Prerequisites: INFO 3150
Not Transferable

INFO 3240 CR-3
Enterprise Resource Planning Systems
Students will learn the concepts in Enterprise Resource Planning (ERP). They will learn the basis of how integrated information systems such as ERP systems can help companies to optimize business processes. Students also will learn business process modeling, process improvement and ERP implementation. They will explore the role of ERP in electronic commerce. Students will gain hands-on experience through working on an ERP system.

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 3241 CR-3
Identity Management
Students will learn the fundamental concepts of digital identity management. They will learn the concepts of digital identity, digital identity lifecycles, digital rights management and identity management architecture building. They will also examine industrial software and tools and use them to build identity management systems.

Prerequisites: INFO 3160
Not Transferable

INFO 3245 CR-3
Mobile Programming I
Students will learn the skills for developing Android-based mobile applications. They will be introduced to the basics of wireless technologies associated with a smartphone such as cellular networks, Wi-Fi networks, satellite networks, and GPS systems. They will learn the Android fundamentals and the methods for designing and developing Android software programs for database, audio, video and communication applications.

Prerequisites: Acceptance into Bachelor of Technology in Information Technology
Transferable (refer to transfer guide)

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2014-15 Calendar

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INFO 3246 CR-3
Mobile Programming II
Students will learn software application development for iOS, the mobile operating system from Apple Inc. They will be introduced to programming in Objective-C and will learn the skills in designing, developing and deploying different types of mobile applications for both iPad and iPhone.

Not Transferable

INFO 3250 CR-3
Content Management and Information Architecture
Students will learn the concepts of content management and information architecture. They will learn the major components of a typical content management system (CMS) and its underlying information architecture that support information needs of enterprises. They will learn the criteria to evaluate and select a CMS. Student also will learn to design content access structures and to apply structured authoring techniques in content composition using Extensible Markup Language (XML) and Darwin Information Typing Architecture (DITA).

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 3280 CR-3 (formerly INFO 4230)
Information Technology Project Management
Students will learn topics in Information Technology (IT) project management. They will examine various issues related to the development and implementation of complex information systems. Students will explore the use of new technologies in IT project management and will use a project management software tool to complete assignments, case studies and a term project.

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 3290 CR-3
Networking Technologies III
Students will learn the fundamentals of virtualization. They will learn the internals of a Virtual Machine (VM), how to install and deploy VM Applications on desktop computers and enterprise servers, back up and recovering VMs, use virtual file systems, implement failover clusters, create load-balanced clusters, build VM clusters. They will also be introduced to storage networking and storage virtualization, and virtualized information systems.

Not Transferable

INFO 4110 CR-3
Cloud Computing
Students will learn cloud computing basics, benefits and limitations, cloud computing technologies (hardware and infrastructure), cloud accessing technologies, cloud storage, standards in cloud computing, software as a service, and cloud application development.

Prerequisites: 12 INFO credits at the 3000 level or higher and acceptance into Bachelor of Technology in Information Technology
Not Transferable

INFO 4115 CR-3
Website Design
Students will learn the Web design process. They will learn website planning and usability design, website navigation design, graphics and color selection, text formatting using cascated style sheet (CSS), browser compatibility testing and interactivity design using JavaScripts.

Prerequisites: 12 INFO credits at the 3000 level or higher and acceptance into Bachelor of Technology in Information Technology
Not Transferable

INFO 4120 CR-3
Digital Forensics
Students will learn the foundations of digital forensics. They will learn the key technical concepts, the methodologies used and the tools needed in digital forensics. Students will learn how to perform examinations for computers, networks, mobile devices, GPS, the Cloud and the Internet. Students will also learn how to collect evidence, document the scenes, and recover deleted data.

Prerequisites: INFO 3170
Not Transferable

INFO 4125 CR-3
Website Security
Students will learn the core mechanisms and tools for Web security. They will learn the principles of Web attacks on authentication, users, application servers, data stores, back-end components, application logic and bypassing client side controls. They will also learn how to discover and prevent Web security flaws during Web application development and measures to improve Web security.

Prerequisites: 12 INFO credits at the 3xxx level and acceptance into 3rd year of the BTech program.
Not Transferable

INFO 4190 CR-3
Integration Project I
Students will conduct an extensive literature review and research for projects originating from faculty or the stakeholders from the industry or local communities. Students will carry out detailed project designs and complete the overall project design documentation in this capstone course. They will report the design results through presentations that are open to all faculty and students in the department and industry sponsors. Students will apply in great depth and breadth the system, hardware, software and project management knowledge they learned in the program to the accomplish the tasks of the project.

Note: This course is a prerequisite for INFO 4290 Integration Project II where the students will implement their designs using software and/or hardware.

Prerequisites: 24 INFO credits at the 3000 level or higher and acceptance into Bachelor of Technology in Information Technology
Not Transferable

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2014-15 Calendar

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INFO 4210 CR-3 (formerly INFO 4210/PSYC 4920)
Human Factors and Computer Interface Design
Students will study procedures for analyzing human-computer interaction (HCI) and will translate this information into design criteria. They will learn to ensure that computer interface design specifications meet end-user requirements for perceptual and cognitive factors; learnability; recall, recognition and retention; speed and accuracy of performance; cultural factors; and job satisfaction. They will identify task and system requirements and perform usability testing methodologies for both desktop and small screen interfaces.

Prerequisites: 12 INFO credits at the 3xxx level and acceptance into 3rd year of the BTech program.
Transferable (refer to transfer guide)

INFO 4225 CR-3
Animations
Students will learn the skills of using professional software to create animations for Web applications. They will learn simple and complex graphics, graphics on multiple layers, symbols and basic animation, motion and shape Tweening, buttons and actions, and action programming.

Prerequisites: INFO 3225
Not Transferable

INFO 4235 CR-3
Special Topics in Web and Mobile Application Development
Students will learn emerging technologies in mobile and web application development. The department will update the content of the course based on industrial needs. Currently this course teaches social media application development, specifically Facebook application development. Students will learn the Facebook Markup Language (FBML), the Facebook API, the Facebook Query Language (FQL), and the skills for Facebook application development.

Prerequisites: INFO 3150
Not Transferable

INFO 4250 CR-3
Special Topics in Network Administration and Security
Students will learn special topics in network administration and security. This course is designed to cover emerging technologies that the department deems important but are not covered in other courses. Currently the course covers data center fundamentals. Topics include introduction to server farms, infrastructure protocols, security and load balancing, server health management, persistence mechanisms on load balancers and data center design.

Prerequisites: INFO 3160
Not Transferable

INFO 4290 CR-3
Integration Project II
Students will implement the project designs they produced in the course INFO 4190 (Integration Project I) using suitable software tools and selected hardware. They will test and debug the project implementations and generate the final system prototype and project documentation. They will report and demonstrate the final project results through presentations which are open to all faculty and students in the department, as well as industrial sponsors.

Prerequisites: INFO 4190
Not Transferable

INFO 4310 CR-3
Entrepreneurial Development in Information Technology
Students will gain an understanding of entrepreneurship fundamentals in the information technology sector, including business planning, financing and venture capital, operations, human resources, marketing and personal selling.

Prerequisites: Acceptance into 3rd year of the BTech program.
Not Transferable

INFO 4320 CR-3
Software Quality Assurance
Students will learn the essential features involved developing timely, cost-effective and high quality software products that meet the user's requirements. They will examine the effective deployment of quality assurance procedures throughout the entire software development process. Other topics covered in this course will include: the concepts of Total Quality Management (TQM), development of quality assurance plans, implementation of verification and validation functions, selection of tools to support quality assurance, application of software metrics to measure quality, and the International Standards Organization (ISO) certification process.

INFO 4330 CR-3
Data Warehousing and Data Mining
Students will examine the problems caused by having too much information and the methods, processes and tools for extracting useful information from multidimensional databases and data marts stored on different system platforms. They will also acquire the techniques for defining, selecting, implementing and evaluating data warehousing and data mining solutions for businesses.

INFO 4350 CR-3
Wireless Technologies and Programming
Students will learn the concepts and principles of wireless technologies, wireless devices, wireless signals, wireless networks and wireless access technologies. They will learn wireless programming techniques and will develop wireless applications using technologies that include Wireless Markup Language (WML), WMLScript, Java and Microsoft .NET based wireless application development environments.

INFO 4370 CR-3
Security of Wireless Systems
Students will learn about wireless security technologies such as advanced user authentication, robust encryption, and intrusion prevention. They also will learn concepts of wireless discovery, wireless attack identification and monitoring, and wireless security policies and solutions. Students will be required to conduct research and work on a project to solve real-world wireless system security problems in a simulated environment.

Prerequisites: 12 INFO credits at the 3xxx level and acceptance into 3rd year of the BTech program. INFO 3180 is strongly recommended.
Not Transferable

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2014-15 Calendar

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INFO 4380 CR-3
Wireless Sensor Networks
Students will learn the concepts of wireless sensor networks and their applications. They will learn the fundamentals of ZigBee wireless networking, ZigBee protocol layers, transceiver requirements, battery life analysis, as well as examples of ZigBee networks and devices. They will conduct research and develop an application using products from the industry.

Prerequisites: 12 INFO credits at the 3xxx level and acceptance into 3rd year of the BTech program. INFO 3180 is strongly recommended.
Not Transferable