

The Professional Learning Programs offers a variety of classes for international students to choose from every semester. Students take at least two classes in their major (Information Technology, Business, or Civil, Architectural, and Environmental Engineering), two English courses, and one elective course. The elective course can be selected from any of the offered majors to allow students exposure in a new field. If preferred, students can take a third major course rather than an elective. The following courses are offered in the Spring 2012 semester.

All majors have entry level courses that do not require previous experience in that field; however, some courses require previous experience or coursework in that area. Professional Learning Program advisers will work with students individually to establish a suitable course schedule. \*Please note that the class list can change at any time due to management discretion.

### **Information Technology Courses**

Students who major in Information Technology must take a minimum of two of the following courses per semester:

#### **IT 100 Introduction to IT as a Profession**

This course introduces students to the steps necessary to analyze a problem in information technology and identify and define the computing requirements appropriate to its solution, with a focus on how to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs. Students learn to analyze the local and global impact of computing on individuals, organizations, and society. This course leads students to recognize the need for continuing professional development and imparts an understanding of professional, ethical, legal, security and social issues, and responsibilities in information technology. Students write and present, building their ability to communicate effectively with a range of audiences, and work in teams learning to function effectively together to accomplish a common goal.

#### **IT 301 A+ Certification**

Students study the basics of computer architecture and learn to use a contemporary operating system. Hardware requirements, microcomputer components, software compatibility and system installation and options are covered, along with post-installation topics, storage, security, and system diagnosis and repair. Current technologies included in this course include Windows XP/Vista/Server 2003 and knowledge necessary to complete the CompTIA A+ examinations.

#### **IT 311 Introduction to Programming with Java**

Introduction to Programming with Java includes a broad introduction to object oriented programming and the related knowledge necessary to program in a contemporary programming language. This would include coverage of an Application Development Kit, creating stand-alone applications and applets for enhancing Web pages. Current technologies included in this course include the Java programming language and related knowledge necessary to program in Java. This includes coverage of the Java Development Kit (JDK), the Java API, creating stand-alone Java applications, Java applets for enhancing Web pages, and introduction of the Object Model and Object Oriented Programming.

**IT 411 Java Programming**

This course covers a broad spectrum of object-oriented programming concepts and application programming interfaces. The participant considers the details of object-oriented development in topics of multi-threading, data structure collections, stream I/O and client interfaces. Software engineering topics of packaging and deployment are covered as well. Hands-on exercises reinforce concepts taught throughout the course. Current technologies included in this course include the Java programming language and Java APIs, utilizing the newest Java Software Development Kit 1.6.

**IT 421 Database Concepts with Oracle**

This course will cover the introductory and intermediate concepts of data modeling, database design and implementation. Through hands-on exercises using Oracle 9i, participants will learn design, implementation, and administration of single-user and shared multi-user database applications. Critical concepts such as the System Development Life Cycle (SDLC) methodology, Entity-Relationship diagramming and the Normalization process will be explored. The coursework culminates in the development of a semester long database project. Upon completion, students will understand the structural pillars of database technology, and will be ready for the challenges of the workplace.

**IT 434 Human/Computer Interaction**

Introduction to human-computer interaction, a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use. Emphasis is given to the structure of communication between people and computers, capabilities of people to use computers, concerns that arise in designing and building interfaces, design trade-offs, and the process of specification, design, and implementation of user interfaces. Particular emphasis is placed on practical design and usability of computer system user interfaces.

**IT 440 Network+ Certification Training I**

This course covers current and evolving data network technologies, protocols, network components, and the networks that use them, focusing on the Internet and related LANs. The state of worldwide networking and its evolution will be discussed. This course covers the Internet architecture, organization, and protocols including Ethernet, 802.11, routing, the TCP/UDP/IP suite, DNS, Bluetooth, SNMP, DHCP, and more. Participants will be presented with Internet-specific networking tools for searching, testing, debugging, and configuring networks and network-connected host computers. There will be opportunities for network configuration and hands-on use of tools. Current material taught in this course includes the knowledge necessary to complete the CompTIA Network+ examination when coupled with IT 441 Network+ Certification Training.

**IT 441 Network+ Certification II**

Students learn the details, use, and configuration of network applications. Currently protocols and application technologies considered include SNMP, SMTP, IMAP, POP, MIME, BOOTP, DHCP, SAMBA, NFS, AFS, X, HTTP, DNS, NetBIOS, and CIFS/SMB. Windows workgroups and domains: file and printer sharing, remote access, and the Windows Network Neighborhood are addressed. Current material taught in this course includes knowledge the necessary to complete the CompTIA Network+ examination.

**IT 454 Operating System Virtualization**

This course will cover technologies allowing multiple instances of operating systems to be run on a single physical system. Concepts addressed will include hypervisors, virtual machines, Para virtualization and virtual appliances. Both server and desktop virtualization will be examined in detail, with brief coverage of storage virtualization and application virtualization. Business benefits, business cases and security implications of virtualization will be discussed. Extensive hands-on assignments and a group project will allow participants to gain firsthand experience of this technology. Current technologies included in this course include industry-standard virtualization applications which may include VMware Workstation, Server and Infrastructure; Microsoft Virtual PC, Virtual Server, and Server 2008; SWsoft Virtuozzo; Xen, Citrix XenServer and Virtual Iron; Parallels Desktop and Workstation; Sun Solaris Containers; QEMU; VServer; Kidaro; and more. Operating systems used may include Microsoft Windows, Sun Solaris and Linux.

**IT 456 Linux+ Certification Training**

Students learn to set up and configure an industry-standard open source operating system, including the actual installation of the operating system on the participant workstation. Also addressed are applications and graphical user interfaces as well as support issues for open source software. Current technologies included in this course include Linux including necessary knowledge to complete the CompTIA Linux+ examination.

**IT 458 Operating System Security**

This course will address theoretical concepts of operating system security, security architectures of current operating systems, and details of security implementation using best practices to configure operating systems to industry security standards. Server configuration, system-level firewalls, file system security, logging, anti-virus and anti-spy ware measures and other operating system security strategies will be examined.

**IT 461 Internet Technologies & Web Design**

This course will cover how the Internet is organized, addressing, routing, DNS, protocols, TCP/IP, SMTP, the use of Internet applications, and the creation of Web pages using HTML and graphical applications. Networked multimedia distribution technologies are also explored. The design of effective Web site including page layout, user interface design, graphic design, content flow and site structure as well as management of Web site resources including intranet management and design considerations are addressed. Students design and create a major Web site with multiple pages and cross-linked structures.

**IT 466 XML Technology & SOA**

Participants learn XML and Web Services technologies required to develop narrative-centric and data-centric applications in open-standards, message-based enterprise solution. The participant learns to appropriately integrate these technologies using service modeling based on the service-oriented architecture (SOA) pattern. Case-study analyses of business process management (BPM) workflows are considered in the migration to/integration of service-orientation with web services in contemporary SOA. A final project will extrapolate best practices in the development of a service-oriented enterprise application. Current technologies addressed in this course include Extensible Markup Language (XML), XML Schema Definition Language (XSD), Extensible Style-sheet Language Transformations (XSLT), XML Query Language (XQuery), XML Path Language (XPath), Simple Object Access Protocol (SOAP), WS Description Language (WSDL), Universal Description Discovery & Integration (UDDI), Remote Procedure Calls (JAX-RPC), XML Registries (JAXR) and XML Processors (JAXP).

**IT 470 Fundamentals of Management for Tech Professionals**

This course explores fundamentals of management for professionals in high-technology fields. It addresses the challenges of the following: managing technical professionals and technology assets; human resource management; budgeting and managerial accounting; management of services, infrastructure, outsourcing, and vendor relationships; technology governance and strategy; and resource planning.

**IT 471 Project Management for IT**

Basic principles of project management are taught. This course includes software development concepts of requirements analysis, object modeling and design, and software testing. Management of application development and major Web development projects will also be addressed.

**IT 478 Information System Security Management**

In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture and models using current standards and models. Current topics addressed in this course include HIPAA, ISO 27001, ISO 17799/27002, National Institute of Standards and Technology (NIST) security models, Payment Card Industry Data Security Standards (PCI DSS), and certification standards such as CISSP & SSCP (ISC2); GIAC (SANS Institute); Security+ (CompTIA); and CISA & CISM (ISACA). Participants conduct a hands-on information security program audit of a real business, non-profit organization or government institution.

**IT 526 Data Warehousing**

This class will introduce the student to concepts needed for successfully designing, building and implementing a data warehouse. The class will provide the technological and managerial knowledge base for data modeling approaches such as the star schema and database de-normalization issues. Topics such as loading the warehouse, performance considerations, and other concepts unique to the data warehouse environment will be discussed demonstrated in detail.

**IT 527 Data Analytics**

Database Financials is a hands-on course that focuses on the creation, maintenance, and analysis of large financial databases. Concepts such as data modeling, probability, linear regression and statistical data analysis are covered in depth. In addition, this course will use large simulated equities, insurance, and banking database systems.

**IT 538 Computer & Network Forensics**

This course will address methods to properly conduct a computer and/or network forensics investigation including digital evidence collection and evaluation and legal issues involved in network forensics. Technical issues in acquiring court-admissible chains-of-evidence using various forensic tools that reconstruct criminally liable actions at the physical and logical levels are also addressed. Technical topics covered include detailed analysis of hard disks, files systems (including FAT, NTFS and EXT) and removable storage media; mechanisms for hiding and detecting hidden information; and the hands-on use of powerful forensic analysis tools.

**IT 542 Wireless Technology and Applications**

This course will present the foundation of wireless technologies and examine state-of-the-art wireless systems and services, including digital cellular systems (DCS), wireless asynchronous transfer mode (ATM), infrared data transfer (IrDA), wireless local area network technologies including 802.11b (wireless Ethernet) and Bluetooth, and third-generation (3G) systems such as wireless code division multiple access (W-CDMA) and cdma2000. Security for wireless systems including encryption and authentication issues will also be addressed.

**IT 545 Telecommunications Technologies**

Introduction to voice and data communications infrastructure design and implementation. Current infrastructure including components of voice networks (such as carrier switches, PBXs, SS7, T1 trunks, and switched versus dedicated circuits), the Public Switched Telephone-Network (PSTN), communications industry structure, telephone-data system interfaces and interaction, and convergence of voice and data communications systems will be examined, along with possible alternative approaches. Also examined will be components of data networks such as modems, multiplexers, virtual circuits, hubs, bridges, and routers and their relationships to voice communications systems. Future directions in the evolution of voice and data communications technology will be highlighted.

**IT 546 Voice over Internet Protocol**

This course covers a suite of application protocols known as Voice over IP (VoIP). It describes important protocols within that suite including RTP, SDP, MGCP, and SIP and the architecture of various VoIP installations including on-net to on-net, on-net to PSTN and Inter-domain scenarios. The functions of the Network Elements that play significant roles in this architecture will be defined. Examples of network elements that is currently available as products will be examined.

**IT 547 Voice over Internet Protocol: Projects**

This course builds on materials covered in IT 546. Participants create projects that exercise and expand their understanding of Voice over IP (VoIP) protocols, features and architectures. Short projects are focused on the creation and testing of lab configurations designed to assist the final projects. A final individual or group project will develop a VoIP application or feature, or test a current VoIP product and architecture. Participants will describe requirements, create test plans, demonstrate operation, create documentation and give an oral report including presentation slides to an audience appropriate to the scope and scale of the work completed.

**IT 564 Ecomm Site Development with .NET**

Strategies for management of electronic commerce allow students to learn to re-engineering established business processes to increase enterprise competitive advantage, provide better customer service, reduce operating costs, and achieve a better return on investment. Students will learn to evaluate, use, and deploy state-of-the-art tools and techniques needed to develop a reliable e-commerce offering on the Web. The course will cover state-of-the-art programming and development tools. This class will provide students with hands-on exposure needed to design and build a fully functional e-commerce Web site.

**IT 573 Building & Leading Effective Teams**

This course will prepare students to be effective IT managers. Students will be introduced to the general challenges of management as well as the challenges unique to leading teams of technology professionals. The course will explore the skills necessary to excel as a leader including dealing with conflict, developing leadership skills, recruiting and developing employees, and leading remote and virtual teams. Students will explore case studies and execute team exercises to enrich their learning experience.

**IT 574 Information Technology Management Frameworks**

This course will examine the application of industry standard frameworks to the management of information technology infrastructure, development and operations. Frameworks including the Information Technology Infrastructure Library (ITIL), Control Objectives for Information and related Technology (COBIT), and others will be covered. Students will learn to use these frameworks to tailor a set of concepts and policies to necessary manage IT in a specific enterprise.

**IT 581 Entrepreneurship**

This course prepares participants to become leaders in information technology and to build IT enterprises. Participants design and develop a prototype IT product and prepare a business plan and venture proposal presentation.

**IT 582 Business Innovation**

This course is designed to teach innovative thinking through theory, methods, and practice of innovation. The course incorporates Einstein's thinking, and Edison's method to establish the innovation process that can be applied in current business environment. Current economic conditions and global sourcing require that innovation become a leading tool for developing a competitive edge. Innovation has been considered a competency of educated design engineering, and the selected few employees possessing this skill have become insufficient today. Corporations and organizations need innovation to develop customer specific solutions in almost real time.

**Business Courses**

Students who major in Business must take two of the following courses in the Spring 2012 semester:

**PL 811 Introduction to Marketing**

This course provides an introduction to the activities and decisions faced by marketing managers in modern organizations. Topics include: current marketing issues, including customer relationship management (CRM), global marketing, marketing research, supply-chain management and integrated marketing communications (IMC). Special text and classroom focus is placed on Product, Price, Place and Promotion strategies, as they relate to an overall Marketing Plan.

**PL 815 Business Strategy**

This course is the integration and application of the knowledge and skills learned in the foundation, tools and concepts, marketing, finance and functional field component of business management. Business Strategy focuses on the strategy behind business practices, strategic thinking, and creating successful strategies. It is an experiential course designed to enable each student to understand the necessary components of strategic business decisions and to create them.

**PL 819 Essentials of Exporting and Importing**

This course provides a comprehensive overview for conducting export and import business in the global arena. Content focuses on U.S. government trade policies and export-import controls, industry practices and international procedures that are essential for business or entrepreneurial success. Instruction ranges from the basics to more advanced marketing strategies for both export and import. The instructor's newly- published textbook, Essentials of Exporting and Importing, will be the textbook for this course.

**PL 820 Theory and Organization of Management**

This course provides an introduction to the theory and practice of management, including managerial functions: planning, organizing, leading, and controlling. Communication, motivation and decision-making techniques are stressed. Also covered are organization structure and design, the dynamics of individual and group interaction, organization climate, managerial styles, the implication of increasing work force diversity, coping with conflict, and methods for achieving organizational improvement. Issues in international business are dealt with at relevant points.

**PL 821 Supply Chain Management**

This course provides an introduction to the analysis of the purchasing function, including sourcing, buying methods, vendor analysis, and contract execution. Organization and management of the supply chain will be covered with emphasis on intra and inter-company relationships, especially with logistics and general management.

**PL 831 The Financial Markets**

This course will cover the theory and applications identified with financial market behavior. These will include the basis of portfolio theory, risk management, and asset valuation as well as stock, money, bond, mortgage, and futures and options markets

**PL 833 Corporate Finance**

This course studies corporate financial management and will analyze how monetary decisions affect shareholder value and financial risks. Tools used for analysis will be examined.

**PL 835 Public Sector Economics**

This course provides an economic analysis of government policy regarding efficiency and equity. There will be analysis of government taxation and expenditures, income distribution, principles of taxation, and design of public policy.

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**Civil, Architectural, and Environmental Engineering Courses** Students who wish to major in Civil, Architectural and Environmental Engineering must have special department approval. Courses available will be determined based on students' individual skills and background.

**English Courses**

Students will take two English courses in the Spring 2012 semester: Listening and Writing. Students will be given an English assessment upon arrival to determine their English level in these areas and will register for the appropriate course at that time.

**English Studies—Vocabulary I**

This course is designed to teach strategies for improving vocabulary development, including effective ways to build vocabulary and recall new vocabulary. This course also focuses on basic composition skills and elements of the writing process such as pre-writing, organization, transitions, thesis statements, topic sentences, appropriate detail, sentence combining, spelling, punctuation, revision and editing.

**English Studies—Listening I**

This course is designed to support international students in adapting to the culture of American life and developing communication skills and strategies to effectively participate in all aspects of the university. Students will practice communication in various settings and for a wide range of purposes while learning about cultural diversity in the United States. Language skills are reinforced by discussions, listening activities, and readings involving current

issues and different cultural perspectives.

### **Electives**

Students can take any of the courses listed above in the Information Technology and Business courses as an elective. Students may also take the following Industrial Management and Technology Courses as an elective upon department approval.

#### **INT 409 Inventory Control**

Fundamentals of inventory control including inventory classifications, i.e. raw materials, work-in-process (WIP) and finished goods. Topics include inventory record keeping, inventory turnover, the 80/20 (or ABC) approach, external and internal lead times, excess/obsolete inventory, and inventory controls. Material Resource Planning (MRP) and Enterprise Resource Planning (ERP) are included.

#### **INT 410 Operations Management**

Focuses on core processes within an organization -- the activities that add value. An operations strategy depends on the industrial sector as well as the organization. This course introduces a variety of qualitative and quantitative tools for such activities as project management, process analysis, job design, forecasting, resource planning, productivity, quality, inventory, and scheduling.

#### **INT 461 Energy Options for Industry**

Carbon-based fuels are a limited resource and within decades will be in very short supply. Associated energy costs will increase and industry will be required to incorporate alternate fuels and/or power sources, such as uranium (for nuclear power), hydroelectric, geothermal, wind, wave, solar, etc. This course presents such energy options and explores the anticipated impact on industry.

For more detailed program information please contact the Professional Learning Program at:

312-567-5280 or [internationalinfo@iit.edu](mailto:internationalinfo@iit.edu)