IS Courses

CPIS-210 Computer Architecture and Organization (3 Credits)

The objective of this course is to study the internal architecture/components of the computer, how they are integrated together, and the way they are controlled. This course should be preceded by an introduction in Logic and Digital Design. Topics include basic scientific concepts of how data networks function, data transferring techniques starting from hardware levels to high levels of data transferring protocols over intra-networks, and the scientific theories on which the modern digital communication technology is based.

PREREQ: CPCS-202

CPIS-220 Principles of Information Systems (3 Credits)

The objective of this course is to provide students with an overall understanding of the main concepts of information systems and to highlight the importance of information systems in modern organizations and societies. Topics include information, data, and system concepts, information requirements in modern organizations and businesses (including decision making, operations, and other types of requirements), introducing different types of information systems, exploring the systems development life cycle (analysis, design, and implementation), methodologies of developing information systems, managing resources of information systems (data, hardware, software, etc.), knowledge management, quality and evaluation of information systems, ethical, social, and security issues of information systems

PREREQ: CPCS-202

CPIS-222 Principles of Operating Systems (3 Credits)

The objective of this course is to present the basic concepts, modules and algorithms that work as intermediary programs between the user and the hardware, known as operating systems. It covers the basic concepts of recent operating systems, how they are designed and the way they work in terms of their efficiency and reliability. Also, it compares the techniques used inside the operating systems in terms of their speed and use of space. Topics include an overview of operating systems, operating system principles, CPU scheduling and dispatch, concurrency, memory management, and virtual memory.

PREREQ: CPCS-204, CPIS-210

CPIS-240 Database Management Systems (I) (3 Credits)

This course is the first in a series of courses on designing and implementing database information systems. The objective of this course is to prepare students to become able to implement a working database system using one of the popular commercial DBMSs, such as Oracle or MS SQL Server. The course introduces students to the concepts of databases and database modeling and design. It, in particular, provides students with a three-stage methodology for designing relational database applications, namely, conceptual, logical, and physical database modeling and design. In the first stage students will build a conceptual data model that is independent of all physical considerations. They will then transform this model in the second stage into the relational database logical model. In the third stage, students will translate the logical data model into a physical design for the target DBMS. Topics include basic concepts of databases, the 3-stage modeling and design methodology, the concepts of the relational database, conceptual data modeling using ERD, from ERD to RDB and reverse engineering, data normalization, SQL:DDL, SQL: manipulation and query languages, and relational algebra for querying.

PREREQ: CPCS-204

CPIS-250 Software Engineering (3 Credits)

The objective of this course is to introduce the basic concepts and required skills for software engineering. It covers the basic concepts and skills required for developing large scale applications that take long periods of time. The course presents the latest methods and techniques used in software engineering obtained from the actual practice in the field as well as latest advances accomplished by specialist

research centers. Also, it particularly emphasizes on the role of team work on developing software and the skills required to work as part of a team. Topics include foundation for systems development, methodologies of IS development, software process models, process iteration, process activities, project management, project scope, project management life cycle, managing IS project, planning IS project, feasibility study of IS project, models of software development, determining system requirements (functional and non-functional requirements), data modeling and E-R-D model, object-oriented analysis and modeling, systems structure modeling, object, class, attributes, methods, classes relationships, generalization, specialization, association, class diagrams, object-oriented analysis and modeling.

PREREQ: CPCS-204

CPIS-312 Information and Computer Security (3 Credits)

The objective of this course is to equip students with the scientific and mathematical concepts and skills related to information security. Topics include the security of information and software systems, including attacks and data encryption, mathematical foundations, algorithms of cryptography, ways of distributing keys, techniques of data protection over computer networks, and controlling access using passwords.

PREREQ: CPIS-370

CPIS-320 Decision Support Systems and Theory (3 Credits)

The objective of this course is to study how Decision Support Systems (DSS) work and the theory behind different DSS techniques, thereby enabling them to understand today's turbulent business environment and how organizations survive and even excel in such environments (particularly solving problems and exploiting opportunities). This course provides the required skills and knowledge of the various decision-making models so that decisions can be based on logical and mathematical foundations under different circumstances, such as in cases of uncertainty, lack of information, or certainty. This course studies the design of computerized systems to support individual or organizational decisions. Moreover, the course aims at understanding the need for computerized support of managerial decision making and what was an early framework for managerial decision making.

PREREQ: CPIS-220, CPIS-250

CPIS-323 Summer (workplace) Training (0 Credit)

This is mandatory, 200-hour internship program for all FCIT students. The objective of this course is to provide students the opportunity to apply their academic education with hands-on, real world experience in a work setting. Students are sent to different companies to get the real flavor of work group, communications, and professional development experiences.

CPIS-330 Advanced Project and Quality Management (3 Credits)

The objective of this course is to provide students with the necessary skills to plan, implement, control and finish large scale Information Systems projects, making sure of the quality of the projects during and after construction. It equips the students with the advanced requirements of sophisticated projects, the ability to identify the target users of such projects, and the ability to manage versatile projects. This course also covers the standard requirements of the Project Management Institute (PMI), as well as the requirements of (CMMI) Software Engineering Institute (SEI) with the help of one of the project management software packages.

PREREQ: CPIS-334, CPIS-357

CPIS-334 Introduction to Software Project Management (2 Credits)

The objective of this course is to study the processes, methods, techniques, and tools that organizations use to manage their information systems projects. The course covers a systematic methodology for initiating, planning, executing, controlling, and closing projects. This course assumes that project management in the modern organization is a complex team based activity, where various types of technologies (including project management software as well as software to support group

collaboration) are an inherent part of the project management process. This course also acknowledges that project management involves both the use of resources from within the firm, as well as contracted from outside the organization.

CPIS-340 Database Management Systems II (3 Credits)

The objective of this course is to study advanced concepts in Database Managements Systems. It emphasizes on practical skills in designing, using, and optimizing performance of databases. It covers the fundamentals of object-oriented and distributed databases and their architectures. It aims to equip the students with the required techniques to optimize database performance and troubleshoot the concurrency problems of transactions.

PREREQ: CPIS-240

CPIS-342 Data Warehousing and Mining (3 Credits)

The objective of this course is to study the basic concepts of data mining & warehousing and the required skills to develop and use them. It emphasizes on employing data warehousing to support the decision-making process. It also covers the architectures of data warehousing and the infrastructural settings to develop them. It explains various ways of extracting, analyzing data to support the decision-making process. This course is intended to develop the student's ability to extract information from data and identify patterns and trends by designing a data warehouse and by applying data mining methods for classification, clustering, and association analysis.

PREREQ: CPIS-240

CPIS-350 Systems Design Patterns (3 Credits)

The objective of this course is to study the principles of large-scale software architecture. It introduces the patterns, frameworks, and techniques for developing system based on components.

PREREQ: CPIS-250

CPIS-351 IS Analysis and Architecture Design (3 Credits)

The objective of this course is to introduce methods used in IS analysis in order to identify and characterize needs and to automate and create computer systems for them. The automated systems incorporate several technologies, and this course studies the way making optimum use of such systems for the users' service. The course emphasizes on the design phase activities and also presents design using structural and object-oriented techniques. Topics include system architectures design, traditional approach to design, object-oriented approach to design for applications, designing files and database, designing the user interface, designing the system interface and prototyping, controls and security, implementation, and support issues.

PREREQ: CPIS-250

CPIS-352 IS Applications Design and Development (3 Credits)

The objective of this course is to explore the design, selection, implementation, and management of enterprise IT solutions. The focus is on applications and infrastructure and their fit with the business. Topics include frameworks and strategies for infrastructure management, system administration, data/information architecture, content management, distributed computing, middleware, legacy system integration, system consolidation, and software selection, total cost of ownership calculation, IT investment analysis, and emerging technologies. These topics are addressed both within and beyond the organization, with attention paid to managing risk and security within audit and compliance standards. Students also hone their ability to communicate technology architecture strategies concisely to a general business audience.

PREREQ: CPIS-351

CPIS-354 Principles of Human-Computer Interaction (3 Credits)

The objective of this course is to provide an introduction to the field of human-computer interaction (HCI), an interdisciplinary field that integrates cognitive psychology, design, computer science and others. Examining the human factors associated with information

systems provides the students with knowledge to understand what influences usability and acceptance of IS. Topics include the examination of human performance, components of technology, methods and techniques used in design and evaluation of IS, societal impacts of HCI, user-centered design methods, and the contemporary technologies used in empirical evaluation methods.

PREREQ: CPIS-250

CPIS-356 Software Metrics and Economics (3 Credits)

The objective of this course is to study successful software development based on three factors: software technology, economic factors and human relations. This course also covers a variety of important concepts that influence the economics of software development, such as the procedures accompanying the software development process and cost accounting with an emphasis on the various measurement criteria of applications and their development process.

PREREQ: CPIS-250

CPIS-357 Software Quality and Testing (3 Credits)

The objective of this course is to study the significance of quality during the process of developing software. Topics include 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 and Information Systems.

PREREQ: CPIS-250, CPIS-334

CPIS-358 Internet Applications and Web Programming (3 Credits)

The objective of this course is to equip students with the necessary knowledge to design and implement Internet applications. Topics include the specific technologies of these applications, how to employ them in building effective and efficient applications, the technical characteristics of the Internet protocols, the various structures of Internet-based application development, and the organization and security of business transactions conducted over intranets.

PREREQ: CPIS-250

CPIS-360 Advanced Information Systems Technologies (3 Credits)

The objective of this course is to study the basic concepts of using advanced technologies in building and developing recent Information Systems. Topics include object-oriented databases, distributed databases, data warehouses, and data mining techniques.

PREREQ: CPIS-240

CPIS-363 Intelligent Systems (3 Credits)

The objective of this course is to equip students with the required skills to be able to access information and be able to use it efficiently through using intelligent systems that lead to success and economic superiority. This course will cover the necessary concepts and techniques that facilitate developing intelligent systems used in business applications.

PREREQ: CPIS-250

CPIS-370 Fundamentals of Data Networks (3 Credits)

The objective of this course is to provide an introduction to IT infrastructure issues for students majoring in Information Systems. It covers topics related to both computer and systems architecture and communication networks, with an overall focus on the services and capabilities that IT infrastructure solutions enable in an organizational context. It gives the students the knowledge and skills that they need for communicating effectively with professionals whose special focus is on hardware and systems software technology and for designing organizational processes and software solutions that require in-depth understanding of the IT infrastructure capabilities and limitations. It also prepares the students for organizational roles that require interaction with external vendors of IT infrastructure components and solutions. The course focuses strongly on Internet-based solutions, computer and network

security, business continuity, and the role of infrastructure in regulatory compliance.

PREREQ: CPCS-204, CPIS-210

CPIS-380 Introduction to E-Business Systems (3 Credits)

The objective of this course is to study the marketing implications of the e-business systems. Topics include impact on information systems within a business, impact on business design and strategy, impact on the industries and markets, and business models for e-business.

PREREQ: CPIS-351, CPIS-358

CPIS-382 Development of E-Systems and Interface Design (3 Credits)

The objective of this course is to introduce techniques that are useful stand-alone and can be integrated for building a semantic web. Topics include semantic web technologies, data modeling languages such as XML, XML SCHEMA, domain modeling languages such as RDF, RDF Schema, ontology modeling languages such as OWL, query languages such as XQuery and SPRQL. Also students will use tools such as Stylus studio and Protégé in their modeling.

PREREQ: CPIS-358

CPIS-420 Techniques of Decision Support Systems (3 Credits)

The objective of this course is to extend the basic knowledge of DSS covered in the CPIS-320 by studying practical techniques and methods for DSS. Coupled with classical approaches, the course explores the latest techniques available for extracting suitable and relevant information to support making a wide range of decisions from day to day structured decisions, to complex unstructured decisions. In addition, the course also covers intelligent systems in particular relation to DSSs.

PREREQ: CPIS-320

CPIS-424 Modeling and Simulations (3 Credits)

The objective of this course is to develop the student's ability to understand the basic concepts in modeling and simulation and develop discrete event simulation models. Topics include basic simulation modeling, simulation input and output analysis, validation and verification of simulation models, and building simulation models using Arena and MS Excel.

PREREQ: CPIS-250

CPIS-428 Professional Computing Issues (2 Credits)

The objective of this course is to explore the ethical and social issues sparked by the ever-growing information society at the local and global level. Topics include the impact of digitized information on individuals and societies, privacy, intellectual property, computer crimes, evaluating and controlling technology, and professional ethics and responsibilities. The course also explores the social impact of information technology in different areas of human life such as Internet, information flooding, and the computerized world, business, medicine, law, government, transportation, entertainment, education, banking, e-commerce, communications, an overview of the law, ownership of software, software contracts and liability, privacy and the data protection act, computer misuse, and forensic, societies for computing professionals, and professionalism and ethics.

PREREQ: CPIS-323/CPIT-323/CPCS-323

CPIS-430 IS Change Management (3 Credits)

The objective of this course is to equip students with practical procedures to develop and change Information Systems, providing them with scientific methods to create an organization under advanced IS management. Upon finishing this course, students are expected to be able to develop and restructure Information Systems in any department and understand the change management process.

PREREQ: CPIS-330

CPIS-434 IS Strategies and Policies (3 Credits)

The objective of this course is to define the concept of the strategic framework that can be used to evaluate and make use of recent technologies to serve the overall goals of institutions. Topics include the main principles of strategic planning and the interrelation between them, the fundamental management strategies and how to make use of Information Systems, and how to develop short and long-term plans to obtain and manage technology.

PREREQ: CPIS-220

CPIS-444 Knowledge Management (3 Credits)

The objective of this course is to provide the students with the fundamental concepts of Knowledge Management, equipping them with both scientific and theoretical background as well as the necessary practical skills. This course also covers the characteristics of and practical models used in Knowledge Management. It discusses the methods of collecting, classifying, and deploying knowledge to serve the overall goals of the organization.

PREREQ: CPIS-240

CPIS-461 Business Information Systems (3 Credits)

The objective of this course is to equip students with the spirit of initiative in using technology to support business management and to employ technologies to support such spirit. It aims to make the students able to make use of technology as a source of support and strength for the organization. It seeks to meet business requirements by providing them with graduates who are proficient in Information Systems through a set of business applications. It discusses the role of Information Systems in the integration process between the different departments of the organization through homogeneous administrative operations.

PREREQ: CPIS-360

CPIS-462 Information Systems Applications (3 Credits)

The objective of this course is to discuss advanced applications of Information Systems, as determined by the Council of the IS Department.

PREREQ: CPIS-461

CPIS-464 Distributed Systems (3 Credits)

The objective of this course is to explore the concepts and theories of distributed systems. Topics include the characteristics and specifications of distributed systems, how to make use of them to serve operations and the organization in general, and the technical challenges faced in designing, developing, and protecting distributed systems.

PREREQ: CPIS-370

CPIS-465 Geographical Information Systems (3 Credits)

The objective of this course is to explore the concepts and principles of Geographic Information Systems (GIS). Topics include identifying and evaluating the Geographic Information Systems, the distinction between the geographic and nongeographic environments, and a survey of the GIS programming tools and devices.

PREREQ: CPIS-220, CPIS-250

CPIS-466 Office Automation Systems (3 Credits)

The objective of this course is to explore the concepts of office automation. It emphasizes on the planning techniques of office automation and the methods of implementing these plans, including selecting the appropriate technology, hardware, communication equipment, and training human resources. It also covers the administrative and technical concepts of the transformation process to office automation and the significance of the human impact during this process.

PREREQ: BUS-232, CPIS-351

CPIS-472 Data Networks Design and Management (3 Credits)

The objective of this course is to explore the practical concepts and basic processes of designing and managing data networks. It addresses the technical and management aspects related to data networks design and

use. It also equips the students with the technical skills required to compare and contrast between the various techniques related to data networking and the ability to develop selection criteria to choose from the available alternatives.

PREREQ: CPIS-370

CPIS-483 E-Systems Applications (3 Credits)

The objective of this course is to provide broad understanding of various e-system Web applications and to identify the role these E-Systems play in the development process of institutions and the society. Topics/applications include social networks, e-Learning, e-government, mobile computing, pervasive computing, e-CRM, E-Auctions, E-Supply chain, and support technology concepts such Web 2.0 applications, web services, and cloud computing.

PREREQ: CPIS-380

CPIS-486 E-Business Strategies (3 Credits)

The objective of this course is to explore e-business strategies for Information systems and the infrastructure required for web-based business models. Topics include E-Business and virtual organizations, characteristics of virtual organizations, e-business models, globalization on SME e-business, strategy evaluation to change e-business, virtual infrastructure, culture to contact external bodies and participate in e-business, developing strategies for virtual organizations, IS plans and strategies of e-business, and converting to e-business strategies of e-markets.

PREREQ: CPIS-380

CPIS-490 Selected Topics in IS (3 Credits)

The objective of this course is to explore selected topics concerning the latest advancements in the field of Information Systems (topics determined by the Council of the Information Systems Department).

CPIS-498 Senior Project (I) (1 Credit)

This course is the first part of a sequence of two courses that constitute the graduation capstone project. In this part, the student is expected to propose, analyze, and design a software system or conduct a thorough investigation of a particular IS-related problem for research-based projects. The student will deliver oral presentations and written reports.

CPIS-499 Senior Project (II) (3 Credits)

This course is the second part of a sequence of two courses that constitute the graduation capstone project. In this project, the student will continue the System/Research development of the project that started in CPIS-498. The student will deliver oral presentations, progress reports, and a final report.

PREREQ: CPIS-498