603101 Introduction to Web Design (3:3-2)

Prerequisite : 9601099 / P.T.

This course provides students with an overview of the Internet, Internet protocols, client-side, and server-side technologies. The students will learn and practice how to design Web sites using Hyper Text Markup Language (HTML). They will learn how to insert images, hyperlinks, lists, tables, forms, and frames into Web pages. In addition, they will learn how to use Cascading Style Sheets (CSS) and JavaScript in developing Web sites. Students will gain practical skills through lab work and course project. Also, the course introduces digital security and ethics.

603291 Graphical Interface Programming (3:0-3)

Prerequisite: 601212

This course introduces graphical user interfaces (GUI) in C#. Event driven programming. The course provides hands-on practical aspects. The course also examines human-computer interaction field that integrates the capabilities of computer technology with human factors limitations. Topics covered: foundations, the human, the computer, the interaction, usability paradigms and principles, interaction design, understanding users, model of the user in design, affective aspects, interfaces and interactions, data gathering, design and construction of prototypes, evaluation techniques, context awareness.

603316 Internet Applications Programming (3:3-2)

Prerequisite: 60**3**291+603101

This course is designed to introduce the required information and practices related to Web programming. Subjects such as jQuery, PHP (the server-side scripting language), XML, JASON, domain name registration, and web hosting administration tools will be introduced. Furthermore, students will gain practical skills through lab work and course project.

603391 Systems Analysis & Design (3:3-0)

Prerequisite : **601281**

This course introduces System Development Life Cycle (SDLC) covering: Requirements Engineering, requirements collection techniques (interviews, questionnaires, observation and joint application design), requirement analysis using the structural methodology (Data flow diagrams, data dictionary), process of system design using structural approach, introduction to project management, overview of system testing concepts, and system maintenance are introduced.

603392 Software Engineering (3:3-0)

Prerequisite : 603391+ 603315

This course provides knowledge and practice in the object-oriented analysis and design activities of software engineering. Topics covered: unified process model, Requirement Engineering using scenarios and use cases, object oriented analysis models (Class diagram, activity diagram, sequence diagram), introduction to object oriented design models, changing the design to code. Practical sessions using CASE tools also provided.

603404 Requirements Engineering and Specification (3:3-0)
Prerequisite : 603392

This course introduces the various concepts of Requirements Engineering. Topics covered include: essential topics of the variant requirements analysis phases, problem analysis, Prototyping the Requirements, Trawling for Requirements, Scenarios, Writing the Requirements, Reviewing the Specification, Requirements Reusing, Requirements Quality Gateway and risk analysis. A Requirements Specification Template as a standard and guideline in producing the Requirement Specification document. Project and case studies are introduced within the learning scope.

603395 Software Testing (3:3-0)
Prerequisite : 603391

This course provides an introduction to the process of validating and verifying the software during the life cycle. Topics covered: System testing techniques (Static and dynamic white-box testing, static and dynamic black-box testing), testing stages (unit testing, integration testing and system testing), testing strategies (top-down and bottom up), test planning and test reporting. Preparation of software test documents and test cases. Practical experience in using testing CASE tools.

603396 IT Project Management (3:3-0)
Prerequisite : 603391

This course provides a comprehensive understanding of project management, grounded in the CAPM (Certified Associate in Project Management) curriculum provided by the Project Management Institute (PMI). The course will cover the skills needed to successfully initiate, plan, control, manage, and report on IT projects, with a focus on critical PMBOK practices, including integration management, scope management, time management, cost management, quality management, human resource management, communications management, risk management, and procurement management. Knowledge will be applied through case study experiences using the MS Project tool to enhance project management capabilities.

603490 Quality Management & Process Improvement (3:3-0)
Prerequisite : 603396

This course provides a general introduction to Software Quality Assurance. It gives an overview of underlying concepts including: Software Quality Assurance, Quality Control, Quality management, Quality components, and software quality metrics. The course also introduces a detailed process and components for achieving software quality which include: Pre-project components, Software project life cycle quality components, Infrastructure components for error prevention and improvements and Managerial SQA components. It also introduces the International Organization for Standardization's (ISO) quality model.

603491 Software Configuration Management (3:3-0)
Prerequisite : 603392

Software Configuration Management (SCM) is required to control evolving and changing software systems. This course will introduces the basic concepts of software configuration management, the importance of SCM in software development, the different SCM phases and activities, identification and control of configuration items,

how branching is applied in industry, status accounting, release management, CASE tools used in SCM industry.

603405 Software Architecture & Design (3:3-0)

Prerequisite : 603404

Software design is required to produce a solution to a given problem for software systems. This course introduces the following topics: the basic design fundamentals, software design strategies, techniques and methods, architectural design styles and viewpoints with illustrations, design patterns modelling, software design qualities.

603406 Software Development and Documentation (3:3-0)

Prerequisite : 603392

This course explains core software engineering practices at a conceptual level. Explains traditional and agile development methodologies. These include V model, Incremental, evolutionary models, agile mindset, and modeling. It also describes the key foundational pillars of Agile principles. It explains CRC modeling based on responsibilities and collaboration. It explains the importance of the iterative approach of the scrum, as well as the need for continuous documentation. The course provides practical training on implementing the Agile methodology using Azure DevOps.

603385 Database Administraion (3:3-0)

Prerequisite : 601281

This course focuses on database administration concepts. Topics covered include: database management, views integration, data dictionary development, data integrity and security measures. Students will learn how to create operational databases while prioritizing data security, manage users, privileges and resources. Security measures such as encryption, authentication, and access control will be explored to ensure a balance between data confidentiality, integrity and availability.

603492 Advanced Software Engineering (3:3-0)

Prerequisite : 603396

This course is structured around the PMP (Project Management Professional) curriculum and integrates Traditional, Hybrid, and Agile methodologies. The Course will cover the three main domains of project management: People, Process, and Business Environment and the 35 tasks described in the new PMP curriculum. This course will cover advanced skills for tackling complex projects, from project integration to scope, time, cost, quality, human resources, communications, risk, and procurement management using Traditional, Hybrid, and Agile approaches. Knowledge will be applied through practical applications and real-world case studies using the MS Project tool.

603460 Professional Ethics for Information Technology (1:1-0)

Prerequisite: 603391

This course introduces students to the topics of information technology ethics including definitions, rules & policies of computer ethics, hacking, viruses, Internet ethics, freedom of expression on the Internet, computer professionals and social responsibilities, software copyright, intellectual property, software piracy, cyber law and privacy & security of computerized information.

603400 Field Training (3:0-3)

Prerequisite : Dept. Approval+ 603392

This course provides the ability to practice on using computer tools and applications in various fields, either in a public or private sectors under the supervision of the department members. The purpose of the supervised field training experiences is for students to synthesize the knowledge and skills developed during the academic portion of the program in a practical setting. Field training is both a learning experience for students and contributes to the work undertaken on the field training site. The expectation is that the field training will provide learning opportunities unavailable in a classroom setting.

603480 Graduation Project (1) (3:0-3)

Prerequisite : 603392 + 402201

This course is the first of a two-course sequence in which the students will develop a complete graduation project. This course considers as a preparation for GP2 by allowing students to form their teams, select the project idea in a particular area that related to one of information technology fields; understand project scope, study and review literature and previous work in their project idea. In addition to that, this course helps student to plan their work through the 2 semesters, collect all data needed to identify the project's requirements.

603485 Graduation Project (2) (3:0-3)

Prerequisite : 603480

This course is the second of a two-course sequence where the students will apply and integrate the knowledge of the development life cycle, and development tools, to design and build a fully functional information system to solve a business problem for organizations. The Graduation Project challenges students to go beyond the learning that occurs as the result of their prescribed educational program. Students shall complete their projects in areas of concentrated study under the direction and supervision of faculty members.

603311 Programming by Components (3:3-0)

Prerequisite : 603315

This course introduces students to modelling by components. This course covers issues in designing and deploying reusable components, components interfaces, ports. Modelling using components in software engineering processes. Modelling using design patterns. Other topics include creation of Beans, persistent storage and retrieval of Beans, the Java reflection package, introspection to provide Bean information and customization.

603307 Innovation & Entrepreneurship in SE (3:3-0)

Prerequisite : 603392

This course introduces students to the concepts of innovation, entrepreneurship, and creativity in Software Engineering. This course includes the following topics: private sector entrepreneurship; public sector entrepreneurship; social entrepreneurship; types of innovation; innovation characteristics; phases of innovation, benefits of entrepreneurship and innovation to an economy; components of the creative process and creative techniques. Furthermore, the course explains the business model canvas

and helps students understand the impact of innovation and entrepreneurship on organizations and society.

603408 Selected Topics in Sofware Engineering (3:3-0)

Prerequisite : 603391

This course provides topics that are selected by instructors according to the interest of the department and students and cover the novel areas in current advancements in various information technology fields. Suggested topics include: advance-programming languages not included in the degree plan, advance topics in networks, advance topics in database, management information system, advanced topics in internet and web, case study in different areas.

603496 Software Engineering CASE Tools (3:3-0)

Prerequisite : 603404

The course introduces the main concepts of using CASE tools in software engineering. Topics covered: classification of CASE tools, practice on using CASE tools during software development life cycle, comparative study and research on existing CASE tools.

603470Latest Advancements in SE (3:3-0)

Prerequisite : 603315

This course aims at introducing the undergraduate students to the new trends and topics in a variety of areas in information technology, the course structure based on group learning and instructional method that puts students into roles of greater autonomy and responsibility for their learning.

603410 Enterprise Resource Planning Systems (3:3-0)

Prerequisite : 603391

This course provides students with the essential knowledge and skills to use the SAP ERP system, grounded in the SAP TERP10 certification curriculum. This includes understanding SAP system navigation using tutorials. Moreover, the course highlights the integration of logistics, accounting, and human resources processes in SAP ERP. This course is a starting point and knowledge base for attending advanced SAP training and preparing for the SAP TERP10 exam.

603488 Professional Skills in Software Engineering (3:3-0)

Prerequisite : 402201+603391

This course broadly discusses the high-on-demand jobs on both, national and international levels, as well as the most needed skills for industrial sector and marketplace. The students enrolled in the course are introduced to necessary soft skills such as the preparation of resumes, interviews and using professional Social Medias such as LinkedIn. In addition, the course provides students with practical skills required in the market within the field of their specialty.