

<b>Course Code</b>	<b>CS230</b>	<b>Course Name</b>	<b>Fundamental &amp; Ethics of Information System - CS230</b>
<b>No. of Credit</b>	<b>3(3,0,0)</b>	<b>Level</b>	<b>3<sup>th</sup></b>
<b>Prerequisites</b>	<b>None</b>		
<b>Course Description</b>	<p><b>This course provides a detailed survey of information systems. It also provides an introduction to information systems and dominant supportive technologies. Emphasis on reprography (printing, replication, micrographic processes), computing and communications. Applications to library/information systems administration, technical services, reference services, document delivery systems. It presents conceptual, theoretical, historical, social, economic, and ethical issues surrounding the development, deployment and management of dominant information systems technologies. Topics covered include: information systems architectures, database management systems, transaction processing, ecommerce, telecommunications, software and hardware standards, Internet/Web-based systems, data warehousing, data mining, agent-based systems, and social impacts of information system.</b></p>		
<b>Text Book</b>	<b>Fundamentals of Information Systems,10 th e - Ralph M. Stair , George Reynolds, 2012</b>		

<b>Course Code</b>	<b>CS240</b>	<b>Course Name</b>	<b>System Analysis and Design</b>
<b>No. of Credit</b>	3	<b>Level</b>	4
<b>Prerequisites</b>	-		
<b>Course Description</b>	<p>This course introduces established and evolving methodologies for the analysis, design, and development of an information system. Emphasis is placed on system characteristics, managing projects, prototyping, CASE/OOM tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.</p>		
<b>Text Book</b>	Systems Analysis and Design, Kendall and Kendall, Pearson, 2013.		

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<b>Course Code</b>	CS 241	<b>Course Name</b>	Mathematical Modeling for IS
<b>No. of Credit</b>	3	<b>Level</b>	4th
<b>Prerequisites</b>	MATH102		
<b>Course Description</b>	This course is designed to cover the concepts of mathematical models as applied to business. It covers the approaches that can be adopted for problem solving to executive decision making. The list of topics in this course include linear programming models, their graphical analysis, and applications, Network Models, Project Scheduling Models, Inventory Models, Queuing Models, and simulation models.		
<b>Text Book</b>	Lawrence John A., Pasternack Barry A.-Applied management science _ modeling, spreadsheet analysis, and communication for decision making 2and edition -John Wiley & Sons (2002).		

<b>Course Code</b>	CS350	<b>Course Name</b>	Introduction to Database
<b>No. of Credit</b>	4	<b>Level</b>	5
<b>Prerequisites</b>	CSC 217		
<b>Course Description</b>	<p>This course introduces students to database management systems. Topics include Data, Information, File System, Database and Database Users, Database System Concepts and Architecture, Data Modeling using the Entity Relationship (ER) Model, The Relational Data Model and Relational Database Constraints, Functional Dependencies and Normalization for Relational Databases, The Relational Algebra and Relational Calculus, Relational Database Design by ER and EER to Relational Mapping, Disk Storage, SQL Schema Definition, Constraints, Queries and Views (DDL and DML).</p>		
<b>Text Book</b>	ELMASRI & NAVATHE, "Fundamentals of Data Base Systems", sixth Edition, Addison-Wesley, 2015		

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<b>Course Code</b>	CS 351	<b>Course Name</b>	Information System Engineering
<b>No. of Credit</b>	3	<b>Level</b>	5
<b>Prerequisites</b>	None		
<b>Course Description</b>	The objective of this course is to study software engineering principles and techniques used in the specification, design, and testing of software systems. Major software development methodologies are reviewed including requirements, analysis and specifications, design, testing, and documentation. Although the emphasis will be on modern approaches some more traditional software engineering techniques will also be discussed.		
<b>Text Book</b>	Ian Sommerville, Software Engineering, Addison-Wesley, 2011.		

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<b>Course Code</b>	<b>CS 352</b>	<b>Course Name</b>	<b>Visual Programming</b>
<b>No. of Credit</b>	<b>3 (3-0-0)</b>	<b>Level</b>	<b>5th</b>
<b>Prerequisites</b>	<b>CSC 104 Computer Programming 2</b>		
<b>Course Description</b>	<b>This course is designed to cover the concepts of object-oriented programming as related to user interface design. It covers the approaches that can be used in developing front end application. The list of topics in this course include object-oriented design, object oriented programming techniques, exception handling, GUI design techniques, events handling, Swing model and components, multithreading, networking (Client Server model) and access to database.</b>		
<b>Text Book</b>	<b>1. Deitel, Java How to Program, 10/e Pearson Education, Inc., 2015.</b>		

## Courses Description

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<b>Course Code</b>	CS 360	<b>Course Name</b>	Modern Application Development
<b>No. of Credit</b>	3	<b>Level</b>	6
<b>Prerequisites</b>	Computer Programming 2 – CSC104		
<b>Course Description</b>	In this course, modern programming trends and techniques are given, and their usage in developing real application for society organizations. Topics covered include: Introduction to. Creating windows based application, Dealing with controls and forms, database creation, structure query language, and accessing database from the windows form application.		
<b>Text Book</b>	Microsoft Visual Basic 2010: Step by step, Michael Halvorson, Microsoft Press, 2010. Object Oriented Development Using Microsoft Visual Basic.NET, Doke, et. al., Course Technology, 2003.		

<b>Course Code</b>	<b>CS361</b>	<b>Course Name</b>	<b>Database Management Systems</b>
<b>No. of Credit</b>	3	<b>Level</b>	5
<b>Prerequisites</b>	CS350		
<b>Course Description</b>	<p>This course covers the following topics: DBMS architecture and administration; centralized and client-server approaches, system catalog, and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques: serializability, deadlock, locking schemes, time-stamp ordering, multi-version, and optimistic techniques, DB security, distributed databases, distributed DBMS, data fragmentation and replication, distributed transactions management, concepts of object-oriented databases, index, introducing to new emerging DB technologies and applications;</p>		
<b>Text Book</b>	ELMASRI & NAVATHE, "Fundamentals of Data Base Systems", sixth Edition, Addison-Wesley, 2015		



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<b>Course Code</b>	CS363	<b>Course Name</b>	Information Systems Project Management – CS363
<b>No. of Credit</b>	3	<b>Level</b>	6th
<b>Prerequisites</b>	CS 351		
<b>Course Description</b>	Basic management process approach, strategies and planning methods, project planning and scheduling, Bar-Chart, critical path methods, PERT method, resource leveling and allocation, time-cost trade-off, construction and organization approaches, leadership elements and decision making, time and cost control, computer applications.		
<b>Text Book</b>	1- Information technology project management, 6th Edition, Cengage Learning, 2010. 2- Project management with CPM, PERT and precedence Diagramming by Moder J , Phillips C, and Davis E		

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<b>Course Code</b>	CS383	<b>Course Name</b>	Discrete Mathematics - CSC 383
<b>No. of Credit</b>	3	<b>Level</b>	3th
<b>Prerequisites</b>	none		
<b>Course Description</b>	This course studies the mathematical elements of computer science including propositional logic, predicate logic, sets, functions and relations, combinatory, mathematical induction, recursion, algorithms, matrices, graphs, trees, and Boolean logic. During the semester students will learn to recognize and express the mathematical ideas graphically, numerically, symbolically, and in writing. They will become self-regulated learners and help other students become cooperative learners.		
<b>Text Book</b>	1- Discrete Mathematics and Its Applications, by Kenneth H Rosen. McGraw-Hill Education; 7th Edition (2013). ISBN- 10: 0073383090, ISBN-13: 978-0073383095.		

## Courses Description

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<b>Course Code</b>	CS 400	<b>Course Name</b>	Semi-Structured Data
<b>No. of Credit</b>	3	<b>Level</b>	7
<b>Prerequisites</b>	Introduction to Databases Systems - CS 350		
<b>Course Description</b>	XML has become an important standard for data representation and exchange among a variety of web applications. This course introduces essential concepts related to XML, such as DTD and XML Schema (used for describing and validating the structure and the content of XML data); XPath and XQuery (for navigating and querying XML data); XSLT (for transforming XML documents into other XML documents, or other formats such as HTML for web pages).		
<b>Text Book</b>	Beginning XML, Joe Fawcett, Danny Ayers, Liam R. E. Quin, Wrox, 5th Edition, July 2012.		

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<b>Course Code</b>	CS 401	<b>Course Name</b>	DB Management Lab
<b>No. of Credit</b>	3/4	<b>Level</b>	7th
<b>Prerequisites</b>	Database Management Systems-CS361		
<b>Course Description</b>	This course covers the following topics: Slection of DBMS, Architerture of the chosen DBMS, Installation issues, DB creation, Indexing, Integrity constraints triggers and assertions, DB Backups, Security management, Recovery issues, Performance management and tuning. Other feature of the DBMS: Integration with web technology, DB connectivity tools, Data distribution, fragmentaion, and replication issues, Management issues of the DBA activity.		
<b>Text Book</b>	Dawes, C. OCA Oracle 10g administration I study guide(2011). San Francisco, Calif.: SYBEX.		

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<b>Course Code</b>	<b>CS402</b>	<b>Course Name</b>	<b>Introduction to Data Mining</b>
<b>No. of Credit</b>	<b>3(3,0,0)</b>	<b>Level</b>	<b>7<sup>th</sup></b>
<b>Prerequisites</b>	<b>CS 350, Intro. to Database System and CS 241, Mathematical Modeling for IS</b>		
<b>Course Description</b>	<b>The field of data mining has evolved from the disciplines of statistics and artificial intelligence (AI). New data mining algorithms and emerging new applications of data mining as in credit rating, fraud detection, database marketing, customer relationship management, and stock market investments, will be incorporated in the course. Some techniques to be covered are data classification, data clustering, data association, induction, neural network, etc.</b>		
<b>Text Book</b>	<b>Jiawei Han, Micheline Kamber and Jian Pei, Data Mining: Concepts and Techniques, Third Edition, Elsevier, 2012.</b>		

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<b>Course Code</b>	<b>CS403</b>	<b>Course Name</b>	<b>Introduction to Data Ware Houses</b>
<b>No. of Credit</b>	<b>3 (3,0,0)</b>	<b>Level</b>	<b>7th</b>
<b>Prerequisites</b>	<b>Architecture of Database Management Systems – CS361</b>		
<b>Course Description</b>	<b>This course covers the basics concepts of data warehousing, the extraction, transfer and download data, the analytical techniques in order to make strategic decisions and OLAP analysis.</b>		
<b>Text Book</b>	<b>R. Kimball, M. Ross, "The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling", Third edition, John Wiley &amp; Sons Inc., 2013</b>		

## Courses Description

<b>Course Code</b>	CS 404	<b>Course Name</b>	Decision Support Systems
<b>No. of Credit</b>	3	<b>Level</b>	7
<b>Prerequisites</b>	Introduction to Databases Systems - CS 350 Mathematical Modeling for Information Systems - CS 241		
<b>Course Description</b>	This course discusses 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 discusses also the design of computerized systems to support individual or organizational decisions. Moreover, the course presents the need for computerized support of managerial decision making and what was an early framework for managerial decision making.		
<b>Text Book</b>	Ramesh Sharda, Dursun Delen, Efraim Turban, Business Intelligence and Analytics: Systems for Decision Support, Pearson, 2014.		

## Courses Description

<b>Course Code</b>	<b>CS 409</b>	<b>Course Name</b>	<b>CLOUD COMPUTING</b>
<b>No. of Credit</b>	<b>3 (3:0:0)</b>	<b>Level</b>	<b>7<sup>th</sup></b>
<b>Prerequisites</b>	<b>None</b>		
<b>Course Description</b>	<p><b>This course provides a hands-on comprehensive study of Cloud concepts and capabilities across th various Cloud service models including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), and Business Process as a Service (BPaaS).</b></p> <p><b>IaaS topics start with a detailed study the evolution of infrastructure migration approaches from VMWare/Xen/KVM virtualization, to adaptive virtualization, and Cloud Computing / on-demand resources provisioning. Mainstream Cloud infrastructure services and related vendor solutions are also covered in detail.</b></p> <p><b>PaaS topics cover a broad range of Cloud vendor platforms including AWS, Google App Engine, Microsoft Azure, Eucalyptus, OpenStack and others as well as a detailed study of related platform services, such as storage services that leverage Google Storage, Amazon S3, Amazon Dynamo, or other services meant to provide Cloud resources management and monitoring capabilities.</b></p> <p><b>The SaaS and PaaS topics covered in the course will familiarize students with the use of vendor-maintained applications and processes available on the Cloud on a metered on-demand basis in multi-tenant environments. The course also covers the Cloud security model and associated challenges and delves into the implementation and support of High Performance Computing and Big Data support capabilities on the Cloud. Through hands-on assignments and projects, students will learn how to configure and program IaaS services. They will also learn how to develop Cloud-based software applications on top of various Cloud platforms, how to integrate application-level services built on heterogeneous Cloud platforms, and how to leverage SaaS and BPaaS solutions to build comprehensive end-to-end business solutions on the Cloud.</b></p>		



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**Text Book**

**Cloud Computing--Web Based Applications That Change the Way You Work and Collaborate, Que Publishing,2008**

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<b>Course Code</b>	<b>CS 410</b>	<b>Course Name</b>	<b>Web Application Development</b>
<b>No. of Credit</b>	<b>3 (3,0,0)</b>	<b>Level</b>	<b>7<sup>th</sup></b>
<b>Prerequisites</b>	<b>None</b>		
<b>Course Description</b>	<b>This course teaches the student the modern programming trends and technologies, and their usage in developing web applications for organizations and governmental sectors. The course will equip the students with the necessary knowledge to design and implement a real world web applications.</b>		
<b>Text Book</b>	<b>1. ROBERT W. SEBESTA, Programming The World Wide Web, Seventh edition, Pearson Education, 2013. 2. Imar Spaanjaars, Beginning ASP.net 4.5.1 in C# and VB.net, John Wiley &amp; Sons, Inc., 2014.</b>		

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<b>Course Code</b>	<b>CS 470</b>	<b>Course Name</b>	<b>Project (1)</b>
<b>No. of Credit</b>	<b>2</b>	<b>Level</b>	<b>7th</b>
<b>Prerequisites</b>	<b>None</b>		
<b>Course Description</b>	<b>This course is the first part of a sequence of two courses that constitute the BSc 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.</b>		
<b>Text Book</b>	<b>None</b>		

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<b>Course Code</b>	CS 471	<b>Course Name</b>	Data Communications and Computer Networks
<b>No. of Credit</b>	3	<b>Level</b>	7
<b>Prerequisites</b>	None		
<b>Course Description</b>	A top-down exploration of networking using the 5-layer model and the TCP/IP stack. This course covers the following topics: definition of computer networks and their objectives and applications, computer network architecture: layering, protocols and standard models, the ISO OSI and TCP/IP reference models. It also covers application layer protocols: HTTP, SMTP, FTP and DNS. Client-server and P2P architectures are also covered. the course explains the difference between circuit and packet switching along with all delay models associated with them. To support application layer protocols the course covers the services needed from the transport layer, a detailed exploration of TCP and UDP protocols is discussed. Routing and the IP protocol, flow and congestion control. Few details about the link layer.		
<b>Text Book</b>	DATA AND COMPUTER COMMUNICATIONS, William Stallings, Eighth Edition Prentice Hall, 2007.		

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<b>Course Code</b>	<b>CS 480</b>	<b>Course Name</b>	<b>Project (4)</b>
<b>No. of Credit</b>	<b>3</b>	<b>Level</b>	<b>8th</b>
<b>Prerequisites</b>	<b>None</b>		
<b>Course Description</b>	<b>This course is the second part of a sequence of two courses that constitute the BSc graduation capstone project. In this project, the student will continue the System/Research development of the project that started in graduation project 1. The student will implement the design and produce an executable system. He will also deliver oral presentations, progress reports, and a final report.</b>		
<b>Text Book</b>	<b>None</b>		

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<b>Course Code</b>	CS 481	<b>Course Name</b>	Information Security
<b>No. of Credit</b>	3	<b>Level</b>	8
<b>Prerequisites</b>	CSI445		
<b>Course Description</b>	Information Security studies the principles and practices of computer system security including operating system security, network security, software security and web security. Topics include common attacking techniques such as virus, Trojan, worms and memory exploits, threats to network security, classical encryption techniques such as block ciphers and stream ciphers (such as DES, triple DES and AES) asymmetric ciphers (such as RSA), hash functions, MAC functions, digital signature, key management and distribution, X.509 certificates, and transport level security: SSL and TLS intrusion.		
<b>Text Book</b>	Matt Bishop, Computer Security: Art and Science (2 Volume Set) 1 st Edition, Addison-Wesley, 2015, ISBN: 978-0134289519.		

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<b>Course Code</b>	CS 482	<b>Course Name</b>	E-business Systems
<b>No. of Credit</b>	3/4	<b>Level</b>	8
<b>Prerequisites</b>	Data Communications and Computer Networks - CS471		
<b>Course Description</b>	This course covers the following topics: Introduction to E-commerce, E-commerce strategy, Cyber-Services models and applications, Web Advertising, Internet data and payment security, B2C models and examples, B2B and supply chain management, and E-payment.		
<b>Text Book</b>	<ul style="list-style-type: none"><li>• Digital-Business and E-Commerce Management: Strategy, Implementation and Practice, ,Dave Chaffey , 5th edition, Prentice Hall, 2015.</li><li>• Electronic Commerce: A Managerial and Social Networks Perspective, Efraim Turban,David King,Jae Kyu Lee,Ting-Peng Liang,Deborah C. Turban, 8th edition , Springer, 2015.</li></ul>		

<b>Course Code</b>	<b>CS483</b>	<b>Course Name</b>	<b>Enterprise Resource Planning</b>
<b>No. of Credit</b>	<b>3</b>	<b>Level</b>	<b>8<sup>th</sup></b>
<b>Prerequisites</b>	<b>CS350 – Intro. To Database Fundamentals</b>		
<b>Course Description</b>	<p>The objective of this course is to enable the students to have theoretic and practical knowledge on the Enterprise Resource Planning (ERP). The students will learn the business processes of a company and how they are integrated (sales and distribution, finance, human resources, supply chain management, e-business, and customer relationship management). Each business process is deeply explained in order to learn its modules, techniques and appropriate strategies. The students will have the chance to work on real ERP systems and get the chance to work through the main business scenarios. During this course students will work in groups in order to fulfill a project which will be related to the configuration of a business scenario based on typical company needs.</p>		
<b>Text Book</b>	<p>Ellen Monk, Concepts in Enterprise Resource Planning, CENGAGE Learning Custom Publishing, 2011. Electronic Commerce: A Managerial and Social Networks Perspective, Efraim Turban, David King, Jae Kyu Lee, Ting-Peng Liang, Deborah C. Turban, 8 th edition , Springer, 2015.</p>		



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<b>Course Code</b>	CSC 362	<b>Course Name</b>	Operating systems
<b>No. of Credit</b>	3/4	<b>Level</b>	6
<b>Prerequisites</b>	Data Structures (CSCI 217)		
<b>Course Description</b>	<p>This course aims to introduce the fundamentals of an operating systems design and implementation. Topics include an overview of the modern operating system basic concepts, the major components of an operating system, process management and scheduling, thread Control and Signals, mutual exclusion and synchronization, deadlock, memory management and virtual machine.</p>		
<b>Text Book</b>	Silberschatz, Peter B. Galvin; "Operating System Concepts", 8th Edition, Wiley & Sons Inc, 2010.		