COURSES OFFERED IN ENGLISH

CODE	Subject	ECTS	Hours/ week	Course Syllabus
	1ST SEMESTER			
101	MATHEMATICS FOR ENGINEERS	6	4	This course covers the basic concepts of calculus and integral calculus as well as the basic principles and applications of Linear Algebra.
102	PROGRAMMING I	7	6	Introduction to programming and algorithms. Learn to design and develop computer programs in language C. Design algorithms and composition rules. Algorithms techniques and learn how to solve problems requiring sequential processing of data.
103	INTRODUCTION TO COMPUTER SCIENCE	6	6	It provides the basic IT knowledge to students. It introduces students in programming, computer architecture, Personal Computing and Internet Services.
104	LOGIC DESIGN	5	4	Analysis and design of digital circuits. Acquisition of the competencies of integrated circuits for the construction of combinatorial and sequential digital circuits.
105	ANALOG ELECTRONICS	6	6	The course aims at introducing the student to the basic concepts and principles of operation of analog electronics as well as to help in understanding the basic principles of electronic circuit theory. Extensive presentation of the basic theory of electrical circuits, definitions, standards and measurement methodologies for analog electronics.
	2ND SEMESTER			
201	DISCRETE MATHEMATICS	5	4	Mathematical concepts and techniques of discrete methods and their application to solve related problems of Computer Science and Information Technology. Mathematical description of Data Structures, construction and Analysis of Algorithms, foundations of Computer Science, Theory of Algorithms, Theory of Computation, Automata Theory.
202	DIGITAL ELECTRONICS	6	6	Introduce student to the basic concepts and principles of operation of digital electronic circuits. Basic principles of the theory and principles for design and construct digital circuits.
203	TELECOMMUNICATIONS PRINCIPLES	6	5	It introduces students to electromagnetism components and principles of antennas. Present wave propagation along transmission principles.
204	COMPUTER PROGRAMMING & APPLICATION DEVELOPMENT	5	5	The course is a continuation of course PROGRAMMING I. Deepen the basic concepts of programming and algorithms and program construction techniques in C..
205	BUSINESS ADMINISTRATION & MANAGEMENT	4	3	A comprehensive overview of general pronciples of business management, study and analyse main issues in organizing a company , develop long-term goals, strategic choices and decisions.
206	PROBABILITY THEORY & STATISTICS	4	3	Introduction to the basic concepts of probability and statistical methods, providing the appropriate mathematical framework for Computer Engineers.

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	3RD SEMESTER			
301	COMPUTER ARCHITECTURE	6	6	The course introduces student to the basic concepts, principles of operation and computer architecture. It provides the basic principles for design and set-up sophisticated multiprogramming and multiprocessing systems. Definitions, standards and methodologies needed to better understand the operating principles of a modern computer system.
302	DATABASES I	6	6	Introduce the basic concepts of databases and the basic principles of their design. Understand the principles of design databases; database tools and methods
303	WIRELESS COMMUNICATIONS & NETWORKS	4	3	Introduce wireless communication techniques and wireless networks (LANs and cellular)
304	INTERNET COMMUNICATIONS PROTOCOLS	4	3	Introduce the basic concepts of protocols, exchange data and handling information.
305	DATA STRUCTURES & ALGORITHMS	6	5	Main static and dynamic data structures. Evaluate and compare algorithms perfrormance; complexity analysis of basic algorithms.
306	SIGNALS & SYSTEMS	4	3	Introduction to the theory of signals and systems. Basic concepts of describing a system. Signal representaiton in time and frequency domains.
	4TH SEMESTER			
401	DATABASES II	3	3	Design and implement database applications, understand the fundamentals of database management, security and system integrity.
402	OPERATING SYSTEMS	6	6	Basic concepts and principles of computer operating systems. Main operating system components and tools.
403	SEMINAR IN TECHNICAL WRITING	3	3	Exercise students in study a research theme; search bibliography, collect information from various sources and present a subject in front of an audience.
404	ARTIFICIAL INTELLIGENCE	4	4	Introduction to Artificial Intelligence. Logic and knowledge representation. Main search algorithms.
405	LAN & MAN NETWORKS	4	4	Presentation of the main local computer networks. Administration of local network.
406	OBJECT ORIENTED PROGRAMMING	6	6	Introduce to object-oriented programming and design, encapsulation and data hiding. Practical exercise using C ++ programming language.
	5TH SEMESTER			
501	NETWORK MANAGEMENT	5	4	Introduction to Data Networks design and integration of Data Networks and Voice Networks. Understand the IP classes and allocate IP to subnets.
502	INTERNET PROGRAMMING	5	4	Java programming language, design and develop applications; exploit libraries and data structures, using design patterns.
503	MULTIMEDIA TECHNOLOGY	5	4	Main characteristics of multimedia; study compression methods. Standards for text, audio, image, Animation, Video.
504	DIGITAL COMMUNICATIONS	6	6	Basic concepts, structure and operation of digital telecommunication systems. Principles of Digital Signal processing and transmission techniques,detection of digital signals. Definitions and standards for Digital Telecommunications Systems.
505	TELECOMMUNICATION NETWORKS1	5	5	Understand the structure and design of wireless telecommuncation networks and design of modern telecommunications systems.
506	PRINCIPLES OF PROGRAMMING LANGUAGES & COMPILERS	4	3	Computer programs executable production process. Encoding algorithms in a program (verbal, syntactic, semantic), produce executable code for a specific processor or library.
	6TH SEMESTER- NETWORK ENGINEERING DIRECTION			
601	HIGH SPEED NETWORKS AND INTERNET WORKING	5	4	The study, presentation and understanding of new high-speed computer networks. Basic concepts of Internet and realted devices, characteristics and operation of switching devices.

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602	DIGITAL SIGNAL PROCESSING	6	6	Introduction to the theory and principles of operation of modern digital telecommunications systems and Digital Signal Processing. Analysis of transmission techniques and detection of digital signals.
603	OPTICAL AND SATELLITE COMMUNICATIONS	5	4	Advanced issues of telecommunications such as Satellite Communications and Optical Communications. Analysis of transmission and detection techniques.
604	TELECOMMUNICATIONS SYSTEMS	6	6	Understanding of the structure and design of wireless modern telecommunications systems.
	ELECTIVE COURSE I	4	3	
	ELECTIVE COURSE II	4	3	
	6TH SEMESTER- COMPUTER ENGINEERING DIRECTION			
605	MICROPROCESSOR SYSTEMS	6	6	Design and develop microprocessors and microcontroller applications.
606	MULTIMEDIA PROCESSING	5	4	Introduce computational complexity of multimedia processing algorithms and architectures along efficient compression of multimedia.
607	VLSI CIRCUIT DESIGN	6	6	Present the structure and design of CMOS VLSI circuits and their use in modern telecommunications systems.
608	PARALLEL AND DISTRIBUTED SYSTEMS	5	4	Introduce parallel computer architectures and software methods. Present autonomous computing devices that communicate with each other to achieve a common goal.
	ELECTIVE COURSE I	4	3	
	ELECTIVE COURSE II	4	3	
	6TH SEMESTER- SOFTWARE ENGINEERING DIRECTION			
609	SOFTWARE ENGINEERING	6	6	Basic principles governing the development of software, software life cycle, software development techniques using CASE tools.
610	COMPUTER GRAPHICS	6	5	The purpose of the course is to understand the mathematical models and algorithms for modern graphical computer systems.
611	MANAGEMENT INFORMATION SYSTEMS	5	5	Introduce the main categories of Management Information Systems (MIS), present management procedures. Understand the decision-making process, the basic decision models.
612	VISUAL PROGRAMMING	5	4	Introduction to visual programming, learning and use of visual programming environment. Use of Visual C ++ libraries
	ELECTIVE COURSE I	4	3	
	ELECTIVE COURSE II	4	3	
	7TH SEMESTER- NETWORK ENGINEERING DIRECTION			
701	ADVANCE TOPICS ON NETWORK PROGRAMMING	5	4	Present advanced web programming.
702	TELECOMMUNICATION NETWOKRS II	5	4	Understand the structure and operation of telecommunications networks and mobile networks.
703	REAL-TIME DIGITAL SIGNAL PROCESSING SYSTEMS	6	6	Present real-time computer structures. Operation of digital signal processing systems and their use in modern telecommunications systems.
	ELECTIVE COURSE I	7	6	
	ELECTIVE COURSE II	7	6	
	7TH SEMESTER- COMPUTER ENGINEERING DIRECTION			

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704	EMBEDDED SYSTEMS	5	4	Present the principles of operation of an integrated system in a complex environment in terms of hardware, software and system architecture. present technologies that support the development of embedded systems. Implement a project to design, develop and deployment an embedded system.
705	BIOMEDICAL ENGINEERING	5	4	Bio-signal processing, image processing, data mining, artificial and computational intelligence and to apply them in real-world medical applications and data
706	ASIC DESIGN	6	6	Understand the logical and design of integrated special purpose circuits (ASIC - Application Specific Integrated Circuits). Analyzes the different stages of ASIC design, the system specifications and composition.
	ELECTIVE COURSE I	7	6	
	ELECTIVE COURSE II	7	6	
	7TH SEMESTER- SOFTWARE ENGINEERING DIRECTION			
707	DESIGN OF INFORMATION SYSTEMS	6	6	This course examines basic methodologies, analysis techniques and applications design in Business Information Systems (Business Systems).
708	WEB APPLICATIONS TECHNOLOGIES	5	4	Advanced web programming topics and technologies for the development of Internet based applications, modern programming tools (Javascript, PHP, MySQL, XHTML, XML, Perl and CGI scripts).
709	COMPUTATIONAL INTELLIGENCE	5	4	Introduction to Computational Intelligence techniques such as neural networks, evolutionary algorithms and Fuzzy logic and their combinations to solve problems in a wide range of applications.
710	ELECTIVE COURSE I	7	6	
711	ELECTIVE COURSE II	7	6	
	8TH SEMESTER			
801	UNDERGRADUATE DISSERTATION	20		
802	PRACTICAL TRAINING	10		
	ELECTIVE COURSES			
	6TH SEMESTER- NETWORK ENGINEERING DIRECTION			
620	TELE-EDUCATION SYSTEMS	4	3	Learning the basic e-learning principles and operations. Describe distance learning environment.
621	ANALYSIS & DESIGN OF TELECOMMUNICATION CIRCUITS	4	3	Structure and design of electronic and telecommunications circuits and their use in modern telecommunications systems.
622	ANTENNA THEORY: ANALYSIS AND DESIGN	4	3	Theory and antenna design process and their use in modern telecommunications systems.
623	PROTOCOL DESIGN	4	3	Understanding protocols design process and their use in modern computer network systems
624	TELEMATIC APPLICATIONS	4	3	Introduction to the basic principles of telematics technology and the role of telematics in real time applications.
	6TH SEMESTER- COMPUTER ENGINEERING DIRECTION			
625	MICROELECTRONICS CIRCUITS	4	3	Understand the operation of new microelectronics and corresponding devices
626	HARDWARE DESCRIPTION LANGUAGES	4	3	Introduce the standard hardware description language. Design and implementation of embedded systems based on FPGA

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627	HUMAN-COMPUTER INTERACTION	4	3	Introduction and understanding of methods and toold to provide efficient Human-Computer Interaction.
628	EXPERT SYSTEMS	4	3	Design and develop Expert Systems (ES), principles and tools, programming language CLIPS.
629	IMAGE AND VIDEO PROCESSING	4	3	Advanced methods and tools for digital image and video processing.
	6TH SEMESTER- SOFTWARE ENGINEERING DIRECTION			
630	E-COMMERCE	4	3	Present Internet technology, design and implement e-commerce applications .
631	BIOINFORMATICS	4	3	Understand the biological data and information analysis, applications of genetic algorithms
632	COMPUTER SYSTEMS SECURITY	4	3	Understand the issues of Cryptography and Security of Information Systems
634	MULTIMEDIA APPLICATION DEVELOPMENT	4	3	The main objective of the course is that students acquire the basic knowledge to be able to design, develop and maintain multimedia applications.
	6TH SEMESTER			
635	INNOVATION & ENTREPRENEURSHIP	4	3	Develop business plans, transfer idea into a business. Investigate technological innovations.
636	HUMAN RESOURCE MANAGEMENT	4	3	Introduce concepts, methodologies and basic tools for project management and human resource planning.
	7TH SEMESTER- NETWORK ENGINEERING DIRECTION			
721	ADVANCED DIGITAL LOGIC DESIGN USING VHDL	7	6	Understanding the structure and design of telecommunications systems based on FPGA and their use in modern telecommunications systems.
722	MICROWAVE CIRCUITS	7	6	Understanding the structure and design of microwave integrated circuits and their use in modern telecommunications systems.
724	FIBER OPTICS COMMUNICATION NETWORKS	7	6	Present optical communications networks from theory to physical level.
	7TH SEMESTER- COMPUTER ENGINEERING DIRECTION			
726	DESIGN OF ANALOG INTEGRATED CIRCUITS & SYSTEMS	7	6	Understanding the structure and design of integrated electronic and telecommunications circuits and their use in modern telecommunications systems.
727	ROBOTICS	7	6	Understanding Robotics principles and present modern robotic systems.
729	SENSOR NETWORKS	7	6	Understanding the structure and design of sensor networks and microsystems.
	7TH SEMESTER- SOFTWARE ENGINEERING DIRECTION			
732	DATA MINING	7	6	presnet the principles of data mining algorithms, clustering; and handling scientific data.
735	DECISION SUPPORT SYSTEM	7	6	The course aims to introduce students to the concept of decision-making, present Decision Trees and methods for decision making at complex modern organizations.
737	PATTERN RECOGNITION	7	6	The course aims to introduce students to the pattern recognition techniques, neural networks and their applications in practical problems