

ENGINEERING FACULTY DEPARTMENT OF COMPUTER ENGINEERING / INFORMATION SYSTEMS ENGINEERING ELECTIVE COURSES								
Elective Course Group	Course Code	Course Name	T	A	L	C	ECTS C	Prerequisite
Social Elective Courses (Number of Courses Required for Graduation: 6)	HM 001	Humanity and Society	3	0	0	3	5	
	HM 002	Philosophy of Science	3	0	0	3	5	
	HM 003	History of Culture	3	0	0	3	5	
	HM 004	History of Science and Technology	3	0	0	3	5	
	HM 005	Maritime History and Culture	3	0	0	3	5	
	HM 006	History of Civilization	3	0	0	3	5	
	HM 007	International Relations and Globalization	3	0	0	3	5	
	HM 008	Science and Society in Modern Times	3	0	0	3	5	
	FRA 102	French I	3	0	0	3	5	
	RUS 101	Basic Russian I	3	0	0	3	5	
	CHN 101	Basic Chinese I	3	0	0	3	5	
	SPN 101	Spanish I	3	0	0	3	5	
	ENF 111	Academic English I	3	0	0	3	5	
	ENF 121	Academic English II	3	0	0	3	5	
	ENF 122	Business English I	3	0	0	3	5	
	ENF 322	Law	3	0	0	3	5	
	ENF 313	Economics	3	0	0	3	5	
	ENF 329	Quality Management Systems	3	0	0	3	5	
	ENF 330	Analytical Thinking and Problem Solving Techniques	3	0	0	3	5	
	IE 442	Ethics in Engineering and Science	3	0	0	3	5	
	IE 444	Innovativeness and Entrepreneurship	3	0	0	3	5	
	IE 453	Total Quality Management	3	0	0	3	5	
	VL 001	Volunteering Practices	3	0	0	3	5	
Faculty Elective-1 Courses (Number of courses required for graduation 1)	ENF 451	Multidisciplinary Engineering Design	3	0	0	3	5	COMP 325
	ENF 452	Interdisciplinary Design Thinking and Systems Approach	3	0	0	3	5	COMP 325
Faculty Elective Courses-2 (Number of Courses Required for Graduation: 2)	IE 213	Management and Organization	3	0	0	3	5	
	IE 312	Computer Integrated Manufacturing Systems	3	0	0	3	5	
	IE 313	Production Planning and Control	3	0	0	3	5	
	IE 441	Industrial Psychology	3	0	0	3	5	
	IE 443	Industrial 4.0	3	0	0	3	5	
	IE 448	Scientific Research Methods	3	0	0	3	5	
	IE 450	Enterprise Resource Planning	3	0	0	3	5	
	IE 452	Customer Relation Management	3	0	0	3	5	
	IE 476	Project Management	3	0	0	3	5	
Technical Elective Courses (Number of Courses Required for Graduation: 5)	COMP 321	System Analysis and Design	3	0	0	3	5	
	COMP 323	Cyber Security	3	0	0	3	5	
	COMP 431	Advanced Web Programming	3	0	0	3	5	
	COMP 432	Advanced GUI Programming	3	0	0	3	5	
	COMP 433	Design and Analysis of GUI	3	0	0	3	5	
	COMP 434	Game Programming	3	0	0	3	5	
	COMP 435	Mobile Programming	3	0	0	3	5	
	COMP 436	Design Patterns	3	0	0	3	5	
	COMP 437	Introduction to Service Oriented Architecture	3	0	0	3	5	
	COMP 438	Compiler Design and Applications	3	0	0	3	5	
	COMP 439	Internet Technologies	3	0	0	3	5	
	COMP 440	Parallel Programming	3	0	0	3	5	
	COMP 450	Software Quality Assurance and Testing	3	0	0	3	5	
	COMP 451	Combinational Algorithms and Graph Theory	3	0	0	3	5	
	COMP 452	Human Computer Interaction	3	0	0	3	5	
	COMP 462	Computer Vision	3	0	0	3	5	
	COMP 463	Automatic Recognition Technologies	3	0	0	3	5	
	COMP 464	Introduction to Data Mining	3	0	0	3	5	
	COMP 465	Big Data and Business Analytics	3	0	0	3	5	
	COMP 466	Introduction to Machine Learning	3	0	0	3	5	
	COMP 467	Internet of Things	3	0	0	3	5	
	COMP 468	Smart Manufacturing	3	0	0	3	5	
	COMP 469	Agile Software Development	3	0	0	3	5	
	COMP 481	Biomedical Information Systems	3	0	0	3	5	
	COMP 482	Cloud Computing	3	0	0	3	5	
	COMP 483	Introduction to Network Security and Cryptography	3	0	0	3	5	
	COMP 484	Computer Graphics	3	0	0	3	5	
	COMP 485	Computer Forensics	3	0	0	3	5	
	ELK 442	Artificial Intelligence	3	0	0	3	5	
	ELK 443	Control with Fuzzy Logic	3	0	0	3	5	
	ELK 456	Embedded Systems	3	0	0	3	5	
	ELK 457	Digital Image Processing	3	0	0	3	5	
	ELK 458	Digital Video Processing	3	0	0	3	5	
	ELK 493	Fundamentals of Signals and Systems	3	0	0	3	5	
	ELK 494	Fundamentals of Digital Signal Processing	3	0	0	3	5	
	ELK 495	Engineering Electromagnetics	3	0	0	3	5	
	ELK 497	Telecommunication Systems	3	0	0	3	5	
	ELK 499	Mechatronics and Robotics	3	0	0	3	5	
	MEEN 455	Introduction to Mechatronic Engineering	3	0	0	3	5	
	MEEN 456	Mechatronic Design	3	0	0	3	5	
	MATE 491	Abstract Mathematics	3	0	0	3	5	