SOET			B.SC.(H) CYBER SECURITY: 2019-22 (Scheme of Studies as per Choice-Based Credit System)												
			ODD SEMESTER								EVEN SEMESTER				
YEAR	SNO	COURSE CODE	COURSE TITLE	L	T	P	C	SNO		COURSE CODE	COURSE TITLE	L	T	P	C
FIRST	1 / EMP	ETCS508A	INTRODUCTION TO CYBER SECURITY	3	1	-	4	1 / EMP		ETCS510A	INTRUSION DETECTION & PREVENTION SYSTEMS	3	1	-	4
	2 / PEC		OPEN ELECTIVE-I	4	-	-	4	2 / PEC			OPEN ELECTIVE-II	4	-	-	4
	3 / EMP	ETCS521A	COMPUTER CENTRE PLANNING & ESTABLISHMENT	3	1	-	4	3 / EMP		ETCS112A	OBJECT ORIENTED PROGRAMMING	3	1	-	4
	4 / SE	ETEL 101A	COMMUNICATION SKILLS	4	-	-	4	4 / SE		ETEL 402A	SOFT SKILLS AND PERSONALITY DEVELOPMENT	3	-	-	3
	5 / EMP	ETCS103A	PROGRAMMING FOR PROBLEM SOLVING	3	1	-	4	5 / SE		ETCH 125A	ENVIRONMENTAL S	3	-	-	3
	6 / EMP	ETCS509A	INTRODUCTION TO CYBER SECURITY LAB	-	-	2	1	6 / EMP		ETCS 316A	WEB TECHNOLOGIES	3	1	-	4
	7 / EMP	ETCS565A	COMPUTER CENTRE PLANNING & ESTABLISHMENT LAB	-	-	2	1	7 / EMP		ETCS166A	OBJECT ORIENTED PROGRAMMING LAB	-	-	2	1
	8 / SE	ETEL171A	COMMUNICATION SKILLS LAB	-	-	2	1	8 / EMP		ETCA164A	WEB TECHNOLOGIES LAB	-	-	2	1
	9 / EMP	ETCS153A	PROGRAMMING FOR PROBLEM SOLVING LAB	-	-	2	1								
			TOTAL	17	3	8	24				TOTAL	19	3	4	24
SECOND	1 / SE	ETEC 210A	DIGITAL ELECTRONICS	3	1	-	4	1 / EMP		ETCS307A	DATABASE MANAGEMENT SYSTEMS	3	1	-	4
	2 / SE	BSMA217A	REAL ANALYSIS	4	-	-	4	2 / EMP		ETCS202A	SOFTWARE ENGINEERING	3	1		4
	3 / SE	ETMA208A	NUMERICAL ANALYS	4	-	-	4	3 / EMP		ETCS512A	CYBERSPACE & TH	3	1	-	4
	4 / EMP	ETCS217A	DATA STRUCTURES	3	1	-	4	4 / EMP		ETCS511A	CYBER FORENSICS	3	1	-	4
	5 / SE	ETEL401A	PERSONALITY DEVELOPMENT AND COMMUNICATION SKILLS	3	-	-	3	5 / SE		ETMC 226A	FUNDAMENTALS OF MANAGEMENT	3	-	-	3
	6 / SE	ETEC 256A	DIGITAL ELECTRONICS LAB	-	-	2	1	6 / EMP		ETCS 355A	DATABASE MANAGEMENT SYSTEMS LAB	-	-	2	1
	7 / SE	BSMA351A	NUMERICAL ANALYS	-	-	2	1	7 / EMP		ETCS556A	CYBER FORENSICS LAB	-	-	2	1
	8 / EMP	ETCS 257A	DATA STRUCTURES I	-	-	2	1	8 / EMP		ETCS 252A	SOFTWARE ENGINEERING LAB	-	-	2	1
	9 / OE	ETDM301A	Disaster Managemen	3	-	-	3								
			TOTAL	17	2	6	25				TOTAL	15	4	6	22
THIRD	1 / EMP	ETCS211A	OPERATING SYSTEMS	3	1	-	4	1 / EMP		ETCA 330A	NETWORK SECURIT	3	1	-	4
	2 / EMP	ETCS304A	COMPUTER NETWORKS	3	1	-	4	2 / EMP		ETCS514A	IT ENABLED SERVICES	3	1	-	4
	3 / EMP	ETCS513A	ETHICAL HACKING	3	1	-	4	3 / SE		ETCS505A	TECHNICAL WRITING	3	-	-	3
	4 / EMP	ETCS 323A	JAVA PROGRAMMING	3	-	-	3	4 / EMP		ETCS506A	PYTHON PROGRAM	3	1	-	4
	5 / EMP	ETCS 255A	OPERATING SYSTEMS LAB	-	-	2	1	5 / SE		BSMA137A	ALGEBRA	4	-	-	4
	6 / EMP	ETCS558A	ETHICAL HACKING LAB	-	-	2	1	6 / EMP		ETCS555A	PYTHON PROGRAM	-	-	2	1
	7 / EMP	ETCS365A	COMPUTER NETWORKS LAB	-	-	2	1	7 / EMP		ETCA372A	NETWORK SECURITY & STEGANOGRAPHY LAB	-	-	2	1
	8 / EMP	ETCS361A	JAVA PROGRAMMING LAB	-	-	2	1	8 / SE		ETCA368A	MAJOR PROJECT	-	-	6	3
	9 SE		Value Added	2	-	-	-								
	10 SE	ETCS507A	SEMINAR	-	-	2	1								
			TOTAL	12	3	10	20				TOTAL	16	3	10	24
											TOTAL CREDITS		139		

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

SOET

B.SC.(H) CYBER SECURITY - YEAR 2020-2023 (SCHEME OF STUDIES AS PER CHOICE-BASED CREDIT SYSTEM (CBCS) AND LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK (LOCF)

FIRST YEAR

ODD SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	SE	ETEL155A	Communication Skills	4	0	0	4
2	SE	ETDM301A	Disaster Management	3	0	0	3
3	SE	ETCH125A	Environmental Studies	3	0	0	3
4	SE	ETMA163A	Basics of Mathematics	3	1	0	4
5	SE	ETMC121A	Management Thoughts and Applications	3	0	0	3
6	CC	ETCS103A	Programming for Problem Solving	4	0	0	4
7	SE	ETCS153A	Programming for Problem Solving Lab	0	0	2	2
8	SE	ETMA181A	Basic of Mathematics Lab	2	0	0	2
			TOTAL	22	1	2	25

EVEN SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	CC	ETCS308A	Web Technologies	3	0	0	3
2	CC	ETCS512A	Cyber space and the law	3	1	0	4
3	CC	ETCS112A	Object Oriented Programming	3	1	0	4
4	SE	ETPH112A	ELECTRICITY AND MAGNETISM(GE-II)	4	2	0	6
5	CC	ETCA365A	LINUX ENVIRONMENT LAB	0	0	2	1
6	CC	ETCS166A	OBJECT ORIENTED PROGRAMMING LAB	0	0	2	1
7	CC	ETCA164A	WEB TECHNOLOGIES LAB	0	0	2	1
	OE		OPEN ELECTIVE	4			6
			TOTAL	17	4	6	26

SECOND YEAR

ODD SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	CC	ETCS508A	INTRODUCTION TO CYBER SECURITY	3	1	-	4
2	CC	ETCS304A	COMPUTER NETWORKS	4	-	-	4
3	CC	ETCS211A	OPERATING SYSTEMS	4	-	-	4
4	CC	ETCS217A	DATA STRUCTURES	4	-	-	4
5	SE	ETMA215A	PROBABILITY AND STATISTICS	4	-	-	4
6	SE	ETCS509A	INTRODUCTION TO CYBER SECURITY LAB	-	-	2	1
7	SE	ETCS255A	OPERATING SYSTEMS LAB	-	-	2	1
8	SE	ETCS 257A	DATA STRUCTURES LAB	-	-	2	1
9	SE	ETCS365A	COMPUTER NETWORKS LAB	-	-	2	1
			TOTAL	19	1	8	24

EVEN SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	CC	ETCS307A	DATABASE MANAGEMENT SYSTEMS	4	-	-	4
2	CC	ETCS506A	PYTHON PROGRAMMING	3	1		4
3	CC	ETCA 336A	NETWORK SECURITY & STANOGRAPHY	3	1	-	4
4	CC	ETMA312A	CRYPTOGRAPHY	5	1	-	6
5	CC	ETCS401A	ARTIFICAL INTELLIGENCE	4	-		4
6	SE	ETCS 355A	DATABASE MANAGEMENT SYSTEMS LAB	-	-	2	1
7	SE	ETCS555A	PYTHON PROGRAMMING LAB	-	-	2	1
8	SE	ETCA378A	NETWORK SECURITY & STANOGRAPHY LAB	-	-	2	1
			TOTAL	19	3	6	25

THIRD YEAR

ODD SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	CC	ETCS219A	FOUNDATION OF COMPUTER SYSTEMS	3	1	-	4
2	CC	ETCS511A	CYBER FORENSICS	3	1	-	4
3	CC	ETCS301A	Programming in MATLAB	2	-	-	2
4	SE	ETCS350A	Programming in MATLAB LAB	-	-	2	1
5	CC	ETCS556A	CYBER FORENSICS LAB	-	-	2	1
6	CC		DSE -1	3	-	-	3
7	SE		DSE -1 LAB	-	-	2	1
8	CC		DSE - 2	3	-	-	3
9	SE		DSE - LAB	-	-	2	1
	SE		Value Added Course	3	-	0	0
			TOTAL	17	2	8	20

EVEN SEMESTER

SNO		COURSE CODE	COURSE TITLE	L	T	P	C
1	CC	ETCS 510A	INRUSION DETECTION & PREVENTION SYSTEM	3	-	-	3
2	CC	ETCS519A	BLOCKCHAINS	3	1	-	4
3	CC	ETCS202A	SOFTWARE ENGINEERING	4	-	-	4
4	CC	ETCS222A	Computer Organization & Architecture	4	-	-	4
5	SE	ETCS260A	Computer Organization & Architecture Lab	-	-	2	1
6	SE	ETCS561A	BLOCKCHAINS LAB	-	-	2	1
7	CC		DSE-3	4	-	-	4
8	SE		DSE-3 Lab	-	-	2	1
9	SE	ETCS464A	MAJOR PROJECT	-	-	-	6
			TOTAL	18	1	6	28
			TOTAL CREDITS				148

DSE -1

				L	T	P	C
(i)	CC	ETCS409A	Advanced Computer Networks	3	-	-	3
	SE	ETCS452A	Advanced Computer Networks Lab	-	-	2	1
(ii)	CC	ETCS410A	Mobile and Wireless Communication	3	-	-	3
	SE	ETCS453A	Mobile and Wireless Communication Lab	-	-	2	1
(iii)	CC	ETCS411A	Machine Learning	3	-	-	3
	SE	ETCS455A	Machine Learning Lab	-	-	2	1

DSE -3

				L	T	P	C
(i)	CC	ETCS416A	Cloud Computing	4	-	-	4
	SE	ETCA362A	Cloud Computing Lab	-	-	2	1
(ii)	CC	ETCS417A	Data Warehousing and Data Mining	4	-	-	4
	SE	ETCS456A	Data Warehousing and Data Mining Lab	-	-	2	1
(iii)	CC	ETCS418A	Internet of Things	4	-	-	4
	SE	ETCS457A	Internet of Things Lab	-	-	2	1

DSE -2

				L	T	P	C
(i)	CC	ETCS517A	Soft Computing	3	-	-	3
	SE	ETCS559A	Soft Computing Lab	-	-	2	1
(ii)	CC	ETCS518A	Big Data Analytics	3	-	-	3
	SE	ETCS560A	Big Data Analytics Lab	-	-	2	1
(iii)	CC	ETCS515A	Ethical Hacking	3	-	-	3
	SE	ETCS557A	Ethical Hacking Lab	-	-	2	1

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

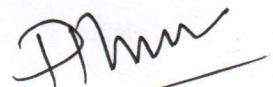| ETCA368A	MAJOR PROJECT	C
		3

The object of Major Project is to enable the student to extend further the investigative study taken up under CSE Minor Project or create a complete new project, The major-project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department alone or jointly with a Supervisor drawn from R&D laboratory/Industry. This is expected to provide a good training for the student(s) in R&D work and technical leadership. The assignment to normally include:

1.   Review and finalization of the Approach to the Problem relating to the assigned topic.
2.   Preparing an Action Plan for conducting the investigation, including team work.
3.   Detailed Analysis/Modelling/Simulation/Design/Problem Solving/Experiment as needed.
4.   Final development of product/process, testing, results, conclusions and future directions.
5.   Preparing a Dissertation in the standard format for being evaluated by the Department.
6.   Final Seminar Presentation before a Departmental Committee.

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
Haryana 122103

Verified By: DEAN SOET

ETCS464A	Major Project	L	T	P	C
Version 1.0		-	-	-	6
Pre-requisites/Exposure	--				
Co-requisites	--				

The course is designed to provide an opportunity to students to demonstrate the ability to devise, select and use a range of methodologies and tools to the Chosen/Given project, applying the theoretical knowledge to a real life situation. Experiential Learning outside classroom through self-exploration, practical experience, Industry, field experience, live experience, research, design projects etc.

The learning process in the Project seeks out and focuses attention on many latent attributes, which do not surface in the normal class room situations. These experiential learning attributes through project includes Intellectual ability, Professional judgment and decision making ability, Inter-disciplinary approach, Skills for data handling, Ability in written and oral presentation, Sense of responsibility Developing professional Skills Application of theory, concepts in given industry /practical / field scenario.

Course Outcomes

On completion of this course, the students will be able to

CO1. Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.
C02. Use the relevant tools necessary for engineering practice.
CO3. Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.
CO4. Communicate effectively and learn to be a team player.
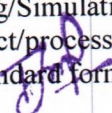
Catalog Description

Students are expected make a project based on the latest advancements related to the parent branch of Engineering. Students may opt for an in-disciplinary project (if feasible).
The project may be a complete hardware or a combination of hardware and software under the guidance of a Supervisor from the Department. This is expected to provide a good training for the student(s) in technical aspects

Student will be continuously evaluated during the semester in form of Project Progress Seminars. At the end of the semester, assessment of the research/project work of each student will be made by the board of examiners including supervisors on the basis of a viva-voce examination and the report submitted by the student.

Course Content

The assignment to normally include:
1. Review and finalization of the Approach to the Problem relating to the assigned topic.
2. Preparing an Action Plan for conducting the investigation, including team work.
3. Detailed Analysis/Modelling/Simulation/Design/Problem Solving/Experiment as needed.
4. Final development of product/process, testing, results, conclusions and future directions.
5. Preparing a report in the standard format for being evaluated by the Department.

Verified By: DEAN SOET

6. Final project presentation before a Departmental Committee.

Modes of Evaluation: Quiz I/Assignment/ presentation/ extempore/ Written Examination

Examination Scheme:

Components	Quiz I	Attendance	Mid Term Exam	Presentation/ Assignment/ etc.	End Term Exam
Weightage (%)	10	10	20	10	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Use applied scientific knowledge to identify and implement relevant principles of mathematics and computer science.	PO3
CO2	Use the relevant tools necessary for engineering practice.	PO5
CO3	Define overall needs and constraints to solve a problem and develop/ design a prescribed engineering sub-system.	PO3
CO4	Communicate effectively and learn to be a team player.	PO10

Course Code	Course Title	Engineering Knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual or team work	Communication	Project management and finance	Life-long Learning	Skills	Best Practices	Professional Responsibilities	Ethics	Analysis
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5

ETCS464A	Major Project		3	2			3					

1=weakly mapped
2= moderately mapped
3=strongly mapped

Registrar
K.R. Mangalam University
Sohna Road, Gurugram. (Haryana)

DEAN
School of Engineering & Technology (SOET)
K.R. Mangalam University
Sohna road, Gurugram
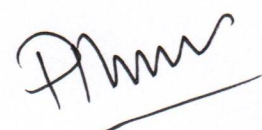Haryana 122103

Verified By: DEAN SOET