

**University of Engineering & Management
Institute of Engineering & Management
IT, CSE & Allied Branches**

Batch 2023-2027

Semester III (Second year) Curriculum								
Sl. No	Type of course	Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Engineering Science Course	ESC301	Analog Electronic Circuits	3	0	0	0	3
2	Engineering Science Course	ESC302	Digital Electronics	3	0	0	0	3
3	Professional Core Courses	PCCCS301	Data structure & Algorithms	3	0	0	0	3
4	Professional Core Courses	PCCCS372	IT Workshop (MATLAB)	3	0	0	0	3
5	Basic Science course	BSM301	Mathematics - III	3	0	0	0	3
6	Humanities & Social Sciences including Management courses	HSMCS301	Humanities - I (Principles of Management)	3	0	0	0	3
7	Humanities & Social Sciences including Management courses	ESP301	Essential Studies for Professionals - III	2	0	0	0	0.5
Total				20	0	0	0	18.5
Practical Papers								
1	Engineering Science Course	ESC391	Analog Electronic Circuits Laboratory	0	0	4	0	2
2	Professional Core Courses	PCCCS391	Data structure & Algorithms Laboratory	0	0	4	0	2
3	Engineering Science Course	ESC392	Digital Electronics Lab	0	0	4	0	2
	Total			0	0	12	0	6
Sessional Papers								
1	Humanities & Social Sciences including Management courses	SDP381	Skill Development for Professionals - III	0	0	0	2	0.5
2	Innovative Project	PRJCS381	Innovative Project – I	0	0	0	0	1
	Total			0	0	0	2	1.5
Mandatory Requirements								
1	Co-curricular & Extra Curricular Activities	MAR	Mandatory Additional Requirements (Score)	0	0	0	0	0
2	Honours	MOOCs	Massive Open Online Courses (Credit)	-	-	-	-	-
3	Certification	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0
	Total			0	0	0	0	0
Total				20	0	12	2	26

Semester IV (Second year) Curriculum								
Sl. No	Type of course	Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Professional Core Course	PCCCS401	Discrete Mathematics	3	0	0	0	3
2	Professional Core Courses	PCCCS402	Computer Organization & Architecture	3	0	0	0	3
3	Professional Core Courses	PCCCS403	Artificial Intelligence & Machine Learning	3	0	0	0	3
4	Professional Core Courses	PCCCS404	Design & Analysis of Algorithms	3	0	0	0	3
5	Professional Core Courses	PCCCS405	Advanced Programming (OOP)	3	0	0	0	3
6	Humanities &Social Sciences including Management courses	HSMCS471	Management 1 (Finance & Accounting)	3	0	0	0	3
7	Humanities &Social Sciences including Management courses	ESP401	Essential Studies for Professionals - IV	2	0	0	0	0.5
8	Mandatory Courses	MCC471	Sustainability, Climate Actions & Environmental Sciences	1	-	(Field Project)	-	2
	Total			21	0	0	0	20.5
Practical Papers								
1	Professional Core Courses	PCCCS492	Computer Organization & Architecture Laboratory	0	0	4	0	2
2	Professional Core Courses	PCCCS493	Artificial Intelligence & Machine Learning Laboratory	0	0	2	0	1
3	Professional Core Courses	PCCCS494	Design & Analysis of Algorithms Laboratory	0	0	4	0	2
4	Professional Core Courses	PCCCS495	Advanced Programming (OOP) Laboratory	0	0	2	0	1
	Total			0	0	12	0	6
Sessional Papers								
1	Humanities &Social Sciences including Management courses	SDP481	Skill Development for Professionals - IV	0	0	0	2	0.5
2	Innovative Project	PRJCS481	Innovative Project – II	0	0	0	0	1
3	Professional Core Course	PCCCS481	Data Analytics	0	0	0	2	1
	Total			0	0	0	4	2.5
Mandatory Requirements								
1	Co-curricular & Extra Curricular Activities	MAR	Mandatory Additional Requirements (Score)	0	0	0	0	0
2	Honours	MOOCs	Massive Open Online Courses (Credit)	-	-	-	-	-
3	IFC	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0

Total	0	0	0	0	0
Total	21	0	12	4	29

Semester V (Third year) Curriculum								
Sl. No.	Type of cours	Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Engineering Science Course	ESC501	Signals & Systems	3	0	0	0	3
2	Professional Core Courses	PCCCS501	Database Management Systems	3	0	0	0	3
3	Professional Core Courses	PCCCS502	Theory of Computations	3	0	0	0	3
4	Professional Core Courses	PCCCS503	Operating Systems	3	0	0	0	3
5	Professional Core Courses	PCCCS504	Software Engineering	3	0	0	0	3
6	Professional Core Course	PCCCS575	Neural Network & Deep Learning	3	0	0	0	3
7	Humanities &Social Sciences including Management course	ESPCS501	Essential Studies for Professionals (CS) – V	2	0	0	0	0.5
8	Mandatory Course	MCC571	Constitution of India	1	0	0	0	1
	Total			21	0	0	0	19.5
Practical Papers								
1	Professional Core Courses	PCCCS591	Database Management Systems Laboratory	0	0	4	0	2
2	Professional Core Courses	PCCCS593	Operating Systems Laboratory	0	0	4	0	2
3	Professional Core Courses	PCCCS594	Software Engineering Laboratory	0	0	4	0	2
	Total			0	0	12	0	6
Sessional Papers								
1	Humanities &Social Sciences including Management course	SDP581	Skill Development for Professionals - V	0	0	0	2	0.5
2	Innovative Project	PRJCS581	Innovative Project – III	0	0	0	0	1
3	Professional Core Course	PCCCS581	Quantum Computing	0	0	0	2	1
	Total			0	0	0	4	2.5
Mandatory Requirements								
1	Co-curricular & Extra Curricular Activities	MAR	Mandatory Additional Requirements (Score)	0	0	0	0	0
2	Honours	MOOCs	Massive Open Online Course (Credit)	-	-	-	-	-

3	Certification	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0
	Total			0	0	0	0	0
Total				21	0	12	4	28

Semester VI (Third year) Curriculum								
Sl. No.	Type of course	New Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Professional Core Courses	PCCCS601	Computer Networks	3	0	0	0	3
2	Professional Elective Courses	PECCS601	Introductory Cyber Security	3	0	0	0	3
3	Professional Elective Courses	PECS602	Elective-I	3	0	0	0	3
4	Professional Elective Courses	PECS603	Elective-II	3	0	0	0	3
5	Professional Core Courses	PCCCS602	Cloud Computing & IoT	2	0	0	0	2
6	Humanities & Social Sciences including Management course	ESPCS601	Essential Studies for Professionals – VI (CS)	2	0	0	0	0.5
	Total			16	0	0	0	14.5
Practical Papers								
1	Professional Core Courses	PCCCS691	Computer Networks Laboratory	0	0	4	0	2
2	Professional Elective Courses	PECCS691	Introductory Cyber Security Laboratory	0	0	4	0	2
3	Professional Core Courses	PCCCS692	Cloud Computing & IoT Laboratory	0	0	4	0	2
	Total			0	0	12	0	6
Sessional Papers								
1	Humanities & Social Sciences including Management course	SDP681	Skill Development for Professionals - VI	0	0	0	2	0.5
2	Project	PRJCS681	Project – I	0	0	0	6	3
3	Professional Core Course	PCCS681	Generative AI	0	0	0	3	1.5
4	Humanities & Social Sciences including Management course	HSMCS682	Humanities - II (Industrial Project Management)	0	0	0	3	1.5
	Total			0	0	0	14	6.5
Mandatory Requirements								
1	Co-curricular &	MAR	Mandatory Additional	0	0	0	0	0
	Extra Curricular Activities		Requirements (Score)					
2	Honours	MOOCs	Massive Open Online Course (Credit)	-	-	-	-	-

3	Certification	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0
Total				0	0	0	0	0
Total				16	0	12	14	27

Semester VII (Fourth year) Curriculum								
Sl. No.	Type of course	New Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Professional Core Course	PCCCS701	Compiler Design	3	0	0	0	3
2	Professional Elective Courses	PECS701	Elective-III	3	0	0	0	3
3	Open Elective Courses	OECS701	Open Elective-I	3	0	0	0	3
4	Humanities & Social Sciences including Management course	ESPCS701	Essential Studies for Professionals – VII (CS)	2	0	0	0	0.5
	Total			11	0	0	0	9.5
Practical Papers								
1	Professional Core Course	PCCCS791	Compiler Design Laboratory	0	0	4	0	2
	Total			0	0	4	0	2
Sessional Papers								
1	Humanities & Social Sciences including Management course	SDP781	Skill Development for Professionals - VII	0	0	0	2	0.5
2	Innovative Project	PRJCS781	Project – II	0	0	0	12	6
3	Internship	INP781	Internship - I	0	0	0	0	4
	Total			0	0	0	14	10.5
Mandatory Requirements								
1	Co-curricular & Extra Curricular Activities	MAR	Mandatory Additional Requirements (Score)	0	0	0	0	0
2	Honours	MOOCs	Massive Open Online Course (Credit)	-	-	-	-	-
3	Certification	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0
	Total			0	0	0	0	0
Total				11	0	4	14	22

Semester VIII (Fourth year) Curriculum								
Sl. No.	Type of course	New Code	Course Title	Hours per week				Credits
				Lecture	Tutorial	Practical	Sessional	
Theory Papers								
1	Professional Elective Courses	PECS801	Elective-IV	3	0	0	0	3
2	Open Elective Courses	OECS801	Open Elective-II	3	0	0	0	3
3	Open Elective Courses	OECS802	Open Elective-III	3	0	0	0	3
4	Humanities & Social Sciences including Management course	ESP801	Essential Studies for Professionals – VIII	2	0	0	0	0.5
	Total			11	0	0	0	9.5
Sessional Papers								
1	Humanities & Social Sciences including Management course	SDP881	Skill Development for Professionals - VIII	0	0	0	2	0.5
2	Project	PRJCS881	Project – III	0	0	0	12	6
3	Grand Viva	PCCS881	Grand Viva-Voce	0	0	0	0	2
4	Internship	INP881	Internship - II	0	0	0	0	4
	Total			0	0	0	14	12.5
Mandatory Requirements								
1	Co-curricular & Extra Curricular Activities	MAR	Mandatory Additional Requirements (Score)	0	0	0	0	0
2	Honours	MOOCs	Massive Open Online Course (Credit)	-	-	-	-	-
3	Certification	IFC	Industry and Foreign Certification (Count)	0	0	0	0	0
4	Skill Activity Report	SAR	Skill Activity Report/Skills as Additional Requirement	-	-	-	-	-
	Total			0	0	0	0	0
Total				11	0	0	14	22

Elective List

Computer Science & Engineering

Recommended Professional Elective Courses					
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence & Data Science	Choice-3 Track: Theory & Systems	Choice-4 Track: Applications
PE-1	Sem-6	Blockchain, Cryptocurrency & NFT (PECS602A)	Soft Computing (PECS602B)	Graph Theory (PECS602C)	Image Processing/ Automotive (PECS602D) / (PEC602)
PE-2	Sem-6	Digital Forensics (PECS603A)	Natural Language Processing Data (PECS603B)	Distributed Systems (PECS603C)	Computer Graphics / ServiceNow System Administrator (PECS603D) / (PEC603)
PE-3	Sem-7	Ad-hoc and Sensor Network (PECS701A)	Warehousing and Business Intelligence (PECS701B)	Parallel Processing (PECS701C)	Computer Vision (PECS701D)
PE-4	Sem-8	Data Encryption and Compression (PECS801A)	Advanced AI (PECS801B)	Real Time Operating Systems (PECS801C)	Human Computer Interaction (PECS801D)
Recommended Open Elective Courses					
Sl. No.	Semester	Option-1		Option-2	
OE-1	Sem-7	Enterprise System (OECS701A)		Economic Policies in India (OECS701B)	
OE-2	Sem-8	Soft Skills and Interpersonal Communication (OECS801A)		History of Science and Engineering (OECS801B)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)		Introduction to Philosophical Thoughts (OECS802B)	

Information Technology

Recommended Professional Elective Courses					
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence	Choice-3 Track: Theory and Algorithms	Choice-4 Track: Applications
PE-1	Sem-6	Information Theory & Coding (PECS602E)	Soft Computing (PECS602B)	Graph Theory (PECS602C)	Image Processing (PECS602D)
PE-2	Sem-6	Data Communication (PECS603F)	Natural Language Processing (PECS603B)	Computer Graphics (PECS603D)	E-Commerce / ServiceNow System Administrator (PECS603I) / (PEC603)
PE-3	Sem-7	Blockchain (PECS701E)	Warehousing and Business Intelligence (PECS701B)	Parallel & Distributed Algorithms (PECS701H)	AR & VR (PECS701G)
PE-4	Sem-8	Information Network Security (PECS801E)	Advanced AI (PECS801B)	Modelling & Simulation (PECS801H)	Human Computer Interaction (PECS801D)
Recommended Open Elective Courses					
Sl. No.	Semester	Option-1		Option-2	
OE-1	Sem-7	Entrepreneurship & Startups (OECS701C)		Operation Research (OECS701D)	
OE-2	Sem-8	Soft Skills and Interpersonal Communication (OECS801A)		Green Computing (OECS801C)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)		Bioinformatics (OECS802D)	

Computer Science & Engineering (IOTCSBT)

Recommended Professional Elective Courses				
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence	Choice-3 Track: Applications
PE-1	Sem-6	Blockchain, Cryptocurrency & NFT (PECS602A)		
PE-2	Sem-6	Digital Forensics (PECS603A)	Big Data Analytics (PECS603G)	Wireless Sensor Network / ServiceNow System Administrator (PECS603H) / (PEC603)
PE-3	Sem-7	Ethical Hacking (PECS701I)	Computational Intelligence (PECS701F)	Smart Sensor Technologies (PECS701J)
PE-4	Sem-8	Security Assessment & Risk Analysis (PECS801I)	Social Media Analytics (PECS801J)	Introduction to Industry 4.0 (PECS801K)
Recommended Open Elective Courses				

Sl. No.	Semester	Option-1	Option-2
OE-1	Sem-7	Entrepreneurship & Startups (OECS701C)	IPR & Patent Filing (OECS701E)
OE-2	Sem-8	Soft Skills and Interpersonal Communication (OECS801A)	History of Science and Engineering (OECS801B)
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Bioinformatics (OECS802D)

Computer Science & Engineering (IOT)

Recommended Professional Elective Courses				
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence	Choice-3 Track: Applications
PE-1	Sem-6	5G Network Technology (PECS602H)	Soft Computing (PECS602B)	Embedded System (PECS602J)/ CMOS VLSI Design for IOT Systems (PECS602L)
PE-2	Sem-6	Data Communication (PECS603F)	Big Data Analytics (PECS603G)	Wireless Sensor Network / ServiceNow System Administrator (PECS603H) / (PEC603)
PE-3	Sem-7	Blockchain (PECS701E)	Social Media Analytics (PECS701M)	Smart Sensor Technologies (PECS701J)
PE-4	Sem-8	Security Assessment & Risk Analysis (PECS801I)	Advanced AI (PECS801B)	Introduction to Industry 4.0 (PECS801K) /IOT Based Communication (PECS801P)
Recommended Open Elective Courses				
Sl. No.	Semester	Option-1	Option-2	
OE-1	Sem-7	Mobile Computing (OECS701F) SGH	IPR & Patent Filing (OECS701E) MBS	
OE-2	Sem-8	Soft Skills and Interpersonal Communication (OECS801A)	Green Computing (OECS801C)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Bioinformatics (OECS802D)	

Computer Science & Engineering (Artificial Intelligence)

Recommended Professional Elective Courses			
Sl. No.	Semester	Choice-1 Track: Artificial Intelligence	Choice-2 Track: Data Science
PE-1	Sem-6	Soft Computing (PECS602B)	Data Science using Python (PECS602K)
PE-2	Sem-6	Natural Language Processing (PECS603B)	Cognitive Computing / ServiceNow System Administrator (PECS603E) / (PEC603)
PE-3	Sem-7	Warehousing and Business Intelligence (PECS701B)	Big Data Computing (PECS701N)
PE-4	Sem-8	Advanced AI (PECS801B)	Social Media Analytics (PECS801J)
Recommended Open Elective Courses			
Sl. No.	Semester	Option-1	Option-2
OE-1	Sem-7	Enterprise System (OECS701A)	Economic Policies in India (OECS701B)
OE-2	Sem-8	Soft Skills and Interpersonal Communication (OECS801A)	History of Science and Engineering (OECS801B)
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Introduction to Philosophical Thoughts (OECS802B)

Computer Science & Technology

Recommended Professional Elective Courses				
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence & Data Science	Choice-3 Track: Applications
PE-1	Sem-6	Blockchain (PECS602A)	Soft Computing (PECS602B)	Human Computer Interaction (PECS602F)
PE-2	Sem-6	Digital Forensics (PECS603A)	Natural Language Processing (PECS603B)	Computer Graphics / ServiceNow System Administrator (PECS603D) (PEC603)
PE-3	Sem-7	Ad-hoc and Sensor Network (PECS701A)	Big Data Computing (PECS701N)	Embedded Systems (PECS701K)
PE-4	Sem-8	Information & Network Security (PECS801E)	Human Computer Interaction (PECS801D)	Image Processing (PECS801L)
Recommended Open Elective Courses				
Sl. No.	Semester	Option-1	Option-2	
OE-1	Sem-7	Data Science & Data Analytics (OECS701G)	Enterprise System (OECS701A)	
OE-2	Sem-8	Mobile Computing (OECS801D)	Green Computing (OECS801C)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Bioinformatics (OECS802D)	

Computer Science & Information Technology

Recommended Professional Elective Courses				
Sl. No.	Semester	Choice-1 Track: Network & Security	Choice-2 Track: Artificial Intelligence & Data Science	Choice-3 Track: Applications
PE-1	Sem-6	Blockchain (PECS602A)	Soft Computing (PECS602B)	Human Computer Interaction (PECS602F)
PE-2	Sem-6	Digital Forensics (PECS603A)	Natural Language Processing (PECS603B)	Computer Graphics / ServiceNow System Administrator (PECS603D) / (PEC603)
PE-3	Sem-7	Ad-hoc and Sensor Network (PECS701A)	Big Data Computing (PECS701N)	Embedded Systems (PECS701K)
PE-4	Sem-8	Information & Network Security (PECS801E)	Human Computer Interaction (PECS801D)	Image Processing (PECS801L)
Recommended Open Elective Courses				
Sl. No.	Semester	Option-1	Option-2	
OE-1	Sem-7	Data Science & Data Analytics (OECS701G)	Enterprise System (OECS701A)	
OE-2	Sem-8	Mobile Computing (OECS801D)	Green Computing (OECS801C)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Bioinformatics (OECS802D)	

Computer Science & Engineering (AI & ML)

Recommended Professional Elective Courses				
Sl. No.	Semester	Choice-1 (A) Track: Theoretical AI	Choice-2 (B) Track: Applied AI	Choice-3 (C) Track: Security
PE-1	Sem-6	Soft Computing (PECS602B)	Data Science using Python (PECS602K)	Blockchain, Cryptocurrency & NFT (PECS602A)
PE-2	Sem-6	Computer Graphics (PECS603D)	Natural Language Processing / ServiceNow System Administrator (PECS603B) / (PEC603)	
PE-3	Sem-7	Advanced Deep Learning (PECS701L)	Computer Vision (PECS701D)	
PE-4	Sem-8	Advanced AI (PECS801B)	Robotics & Embedded System (PECS801N)	Human Computer Interaction (PECS801D)
Recommended Open Elective Courses				
Sl. No.	Semester	Option-1	Option-2	
OE-1	Sem-7	Enterprise System (OECS701A)	Entrepreneurship & Startups (OECS701C)	
OE-2	Sem-8	History of Science and Engineering (OECS801B)	Soft Skills and Interpersonal Communication (OECS801A)	
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Introduction to Philosophical Thoughts (OECS802B)	

Computer Science & Business Systems

Recommended Professional Elective Courses			
Sl. No.	Semester	Choice-1 (A) Track: Networks	Choice-2 (B) Track: Applied AI
PE-1	Sem-6	Blockchain, Cryptocurrency & NFT (PECS602A)	Data Science using Python (PECS602K)
PE-2	Sem-6	Soft Computing (PECS602B)	Natural Language Processing / ServiceNow System Administrator (PECS603B) / (PEC603)
PE-3	Sem-7	5G & 6G Network Technologies (PECS701O)	Computer Vision (PECS701D)
PE-4	Sem-8	Warehousing and Business Intelligence (PECS801O)	Robotics & Embedded System (PECS801N)
Recommended Open Elective Courses			
Sl. No.	Semester	Option-1	Option-2
OE-1	Sem-7	Enterprise System (OECS701A)	Entrepreneurship & Startups (OECS701C)
OE-2	Sem-8	History of Science and Engineering (OECS801B)	Soft Skills and Interpersonal Communication (OECS801A)
OE-3	Sem-8	Cyber Law and IPR (OECS802A)	Introduction to Philosophical Thoughts (OECS802B)