



BATCH: 2025-2029



SYLLABUS

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
UNIVERSITY OF ENGINEERING & MANAGEMENT JAIPUR

B.Tech. ECE Course Structure

1st Semester (Group – B: ECE)

Sl. No.	Type of Course	Subject code	Subject name	L	T	P	S	Total Contact Hours	Credit Points
THEORY									
1	Basic Science Course	BSCCH102	Chemistry	3	1	0	0	4	4
2	Basic Science Course	BSCM103B	Mathematics and Basic Statistics	3	1	0	0	4	4
3	Humanities and social sciences including Management	HSMC101	English	2	0	0	0	2	2
4	Engineering Science Course	ESCEC101	Basic Electronics Engineering	3	1	0	0	4	4
5	Engineering Science Course	ESME102B	Engineering Mechanics - Essentials	1	1	0	0	2	2
6	Engineering Science Course	ESCCS101	Programming for Problem Solving using C	2	1	0	0	3	3
7	General Studies Course	ESP101	Essential Studies for Professionals - I	1	0	0	0	1	1
PRACTICAL									
8	Basic Science Course	BSCCH192	Chemistry Laboratory	0	0	3	0	3	1.5
9	Humanities and social sciences including Management	HSMC191	Language laboratory	0	0	2	0	2	1
10	Engineering Science Course	ESCEC191	Basic Electronics Engineering Laboratory	0	0	2	0	2	1

11	Engineering Science Course	ESCME193	Workshop/ Manufacturing Practices	1	0	4	0	5	3
12	Engineering Science Course	ESCCS191	Programming for Problem Solving Laboratory using C	0	0	4	0	4	2
SESSIONAL									
13	Mandatory Courses	IKS171	Indian Knowledge System for Engineers	0	0	0	2	2	2
Mandatory Industry and Value Added Courses (IVC)									
14	Mandatory Industry and Value Added Courses (IVC)	IVC181	Design Thinking & Innovation- Basic	0	0	0	1	1	0
15	Mandatory Industry and Value Added Courses (IVC)	IVC182	Economics, Finance and Entrepreneurship Skills - Basic	0	0	0	1	1	0
Total Credit Points of Semester				16	5	15	4	40	30.5
16	Mandatory Courses	MAR	Mandatory Additional Requirements	0	0	0	0	0	0
17	Mandatory Online Courses	MOOCs	Massive Open Online Courses	0	0	0	0	0	0
18	Mandatory Online Courses	IFC	Industry and Foreign Certification	0	0	0	0	0	0
19	Mandatory Courses	SAR	Skill Additional Requirements	0	0	0	0	0	0
Skill Addition Requirements (SAR) 1. Foreign Language, 2. Physical Education, 3. Soft Skill									

2nd Semester (Group – B: ECE)

Sl. No.	Type of Course	Subject code	Subject name	L	T	P	S	Total Contact Hours	Credit Points
THEORY									
1	Basic Science Course	BSCPH201	Physics	3	1	0	0	4	4
2	Basic Science Course	BSCM203A	Mathematics - Calculus	3	1	0	0	4	4
3	Basic Science Course	BSCBE204	Biology for Engineers	2	0	0	0	2	2
4	Engineering Science Course	ESCEE201	Basic Electrical Engineering	3	1	0	0	4	4
5	Engineering Science Course	ESME202A	Engineering Mechanics - Principles	1	1	0	0	2	2
6	Engineering Science Course	ESCCS202	Introduction to AI and Data Science using Python	2	1	0	0	3	3
7	General Studies Course	ESP201	Essential Studies for Professionals - II	1	0	0	0	1	1
PRACTICAL									
8	Basic Science Course	BSCPH291	Physics Laboratory	0	0	3	0	3	1.5
9	Basic Science Course	BSCBE294	Biology for Engineers Laboratory	0	0	2	0	2	1
10	Engineering Science Course	ESCEE291	Basic Electrical Engineering Laboratory	0	0	2	0	2	1
11	Engineering Science Course	ESCME292	Engineering Graphics & Design	1	0	4	0	5	3

12	Engineering Science Course	ESCCS292	Introduction to AI and Data Science Laboratory using Python	0	0	4	0	4	2
SESSIONAL									
13	Humanities and social sciences	UHV272	Universal Human Values- II	0	0	0	2	2	3
Mandatory Industry and Value Added Courses (IVC)									
14	Mandatory Industry and Value Added Courses (IVC)	IVC281	Design Thinking & Innovation- Intermediate	0	0	0	1	1	0
15	Mandatory Industry and Value Added Courses (IVC)	IVC282	Economics, Finance and Entrepreneurship Skills - Intermediate	0	0	0	1	1	0
Total Credit Points of Semester				16	5	15	4	40	31.5
16	Mandatory Courses	MAR	Mandatory Additional Requirements	0	0	0	0	0	0
17	Mandatory Online Courses	MOOCs	Massive Open Online Courses	0	0	0	0	0	0
18	Mandatory Online Courses	IFC	Industry and Foreign Certification	0	0	0	0	0	0
19	Mandatory Courses	SAR	Skill Additional Requirements	0	0	0	0	0	0
Skill Addition Requirements (SAR) 1. Foreign Language, 2. Physical Education, 3. Soft Skill									

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UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA, JAIPUR
6th SEMESTER

[illegible]

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7th SEMESTER

[illegible]

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8th SEMESTER

[illegible]

CUMULATIVE CREDIT POINTS

A. B.Tech Course (Electronics & Communication Engineering)

SEMESTER	TOTAL CREDIT POINTS
3.	25
4.	21
5.	23
6.	24
7.	22
8.	24
Total	139 + 62(1st Year)=201

ECE Department Phygital Certificate Course Details

Specialized Certificate (Learning Pathway) for 2nd Year and 3rd Year	Any one certificate during 3rd and 4th Sem.	Embedded Software Development with C Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/embedded-software-development-with-c?source=search#courses Semiconductor Devices Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/semiconductor-devices?source=search#courses Digital Signal Processing Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/digital-signal-processing?source=search Hands-on Internet of Things Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/uisc-iiot?source=search#courses FPGA Design for Embedded Systems Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/fpga-design?source=search#courses Chip based VLSI design for Industrial Applications Specialization https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/chip-based-vlsi-design-for-industrial-applications?source=search#courses	
	Any one certificate during 5th and 6th Sem.		
3rd Semester Two subjects for phygital learning certificate	PCCECE304: Network Theory	1. Electrical Design Engineer - Circuit Analysis 2. Linear Circuits 2: AC Analysis 3. Basic Electronics 4. Data Structures and Algorithms Specialization 5. Data Structures and Algorithms 6. Data Structures and Algorithms Specialization	2 1. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/electrical-design-engineer--circuit-analysis?source=search 2. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/linear-circuits-ac-analysis?source=search 3. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/basic-electronics-od?source=search 4. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/data-structures-algorithms?source=search 5. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/mstf-data-structures-and-algorithms?source=search 6. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/developer-data-structures-and-algorithms?source=search 7. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/bts-data-structures-and-algorithms?source=search 8. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/data-structures-algorithms-tsinghua?source=search
	OECCE381: Data Structure & Algorithm (Sessional)		
4th Semester Two subjects for phygital learning certificate	PCCECE401: Analog & Digital Communication	1. wireless-communications 2. Data Communication 3. Analog and Digital communication 4. Data Communication 5. Supervised Machine Learning: Regression and Classification 6. Advanced Learning Algorithms 7. Unsupervised Learning, Recommenders, Reinforcement Learning 8. Artificial Intelligence and Machine Learning (AI/ML)	1. https://www.coursera.org/learn/wireless-communications 2. https://www.linkedin.com/learning/computer-science-principles-digital-information/digital-communication?utm_source=linkedin&utm_medium=internal-course-promo 3. https://onlinecourses.nptel.ac.in/noc22_ee05/preview 4. https://www.linkedin.com/learning/iiit-foundations-low-power-wireless-networking 5. https://www.coursera.org/learn/machine-learning?specialization=machine-learning-introduction 6. https://www.coursera.org/learn/advanced-learning-algorithms?specialization=machine-learning-introduction 7. https://www.coursera.org/learn/unsupervised-learning-recommenders-reinforcement-learning?specialization=machine-learning-introduction 8. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/skills/artificial-intelligence-and-machine-learning-ai-ml?query=AI&source=search
	PCCECE403: Introduction to Artificial Intelligence and Machine Learning		
5th Semester Two subjects for phygital learning certificate	PCCECE501: Electromagnetic Waves	1. Physics Fundamentals: Electromagnetics 2. Electrodynamics: Analysis of Electric Fields 3. Introduction to Electromagnetic Radiations 4. Database Structures and Management with MySQL 5. Databases and SQL for Data Science with Python	1. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/fundamentals-in-electromagnetics?source=search 2. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/electrodynamics-analysis-of-electric-fields?source=search 3. https://www.coursera.org/videos/design-of-transmission-line-modelling-and-performance/Cnd8f?query=Electromagnetic+field+theory&source=search 4. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/database-structures-and-management-with-mysql?source=search#modules 5. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/sql-data-science?source=search#modules
	PCCECE504: Data Base Management System		
6th Semester Two subjects for phygital learning certificate	OECCE604A: Deep learning with Generative AI	1. Neural Networks and Deep Learning 2. Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization 3. Principles of Management 4. Principles of business management: Drivers for change 5. Managing Cross-Functional Collaboration as a Leader	1. https://www.coursera.org/learn/neural-networks-deep-learning?specialization=deep-learning 2. https://www.coursera.org/learn/deep-neural-network?specialization=deep-learning 3. https://www.coursera.org/learn/principles-of-management/home/module1 4. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/principlesofmanagement?source=search 5. https://www.linkedin.com/learning/business-fundamentals-for-customer-success-managers/principles-of-business-management-drivers-for-change?u=229219690 6. http://linkedin.com/learning/managing-cross-functional-collaboration-as-a-leader/the-power-of-cross-functional-collaboration?u=229219690
	HSM675: Principles of Management		
7th Semester All subjects for phygital learning certificate	PECECE701A: Embedded System	1. Embedded Systems using C 2. Advanced Embedded Systems with Arduino	1. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/embedded-systems-using-c?source=search&collectionid=skill+embedded-systems 2. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/packd-advanced-embedded-systems-with-arduino+6pus?source=search&collectionid=skill+embedded-systems
	PECECE702A: Microwave Theory and Techniques	Microwave engineering and antennas	https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/microwave-antenna?source=search#modules
	PECECE703A: Digital Image and Video Processing	Fundamentals of Digital Image and Video Processing	https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/digital?source=search
	OECCE704A: Deep Learning	Learning Deep Learning Specialization	https://www.coursera.org/programs/em-faculty-learning-program-tyr7/specializations/pearson-learning-deep-learning-from-perception-to-large-language-models?source=search
8th Semester All subjects for phygital learning certificate	PECECE801A: Fiber Optic Communication	1. Fiber Optic Technology and FTTX 2. Understanding Copper and Fiber Optic Communication Systems 3. RF/Microwave Design - Antenna Design 4. Antenna Design for IoT Communications 5. Microwave engineering and antennas 6. RF/Microwave Design - S-parameter Analysis 7. "1. Foundations of Cybersecurity 8. Google Cybersecurity 9. Introduction to Cybersecurity Essentials 10. Cybersecurity Architecture"	1. https://www.coursera.org/videos/computer-networking/DG82X?source=search&query=fiber%20optic%20communication 2. https://www.linkedin.com/learning/understanding-copper-and-fiber-optic-communication-systems?upset=OrderOrigin=default_guest_learning&trk=default_guest_learning 3. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/rfmicrowave-design--antenna-design?source=search 4. https://www.coursera.org/videos/iiot-communications/bgrb?source=search&query=antenna 5. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/microwave-antenna?source=search 6. https://www.coursera.org/programs/em-faculty-learning-program-tyr7/learn/rfmicrowave-design--s-parameter-analysis 7. https://www.coursera.org/professional-certificates/google-cybersecurity 8. https://www.coursera.org/learn/foundations-of-cybersecurity 9. https://www.coursera.org/learn/introduction-to-cybersecurity-essentials 10. https://www.coursera.org/learn/cybersecurity-architecture
	PECECE802B: Antenna and Propagation Theory		
	OECCE803B: Cyber Security		
	OECCE804B: Optimization Technique	1. Optimization Technique 2. Banking & Finance in India 3. Contemporary Issues in World Politics 4. Basics Economics 5. Microeconomics: Foundations and Insights	1. https://www.udemy.com/course/optimization-for-engineering-students 2. https://www.coursera.org/learn/basic-modeling 3. https://www.coursera.org/learn/banking-and-finance-in-india 4. https://www.coursera.org/programs/uemj-passout-batch-2028-54ok2/learn/basics-economics?source=search 5. https://www.coursera.org/programs/uemj-passout-batch-2028-54ok2/learn/microeconomics-foundations-insights-igu?source=search
	ESP802: Essential Studies for Professionals-VIII		