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/iem-faculty-learning-program-rtyr7/specializations/embedded-software-development-with-c?source=search#courses
		Semiconductor Devices Specialization	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/semiconductor-devices?source=search#courses
		Digital Signal Processing Specialization	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/digital-signal-processing?source=search
	Any one certificate during 5th and 6th Sem.	**Hands-on Internet of Things Specialization**	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/uiuc-iot?source=search#courses
		FPGA Design for Embedded Systems Specialization	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/fpga-design?source=search#courses
		Chip based VLSI design for Industrial Applications Specialization	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/chip-based-vlsi-design-for-industrial-applications?source=search#course

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	1. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/electrical-design-engineer---circuit-analysis?source=search 2. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/linear-circuits-ac-analysis?source=search 3. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/basic-electronics-odc?source=search
	OEC381: Data Structure & Algorithm (Sessional)	1. Data Structures and Algorithms Specialization 2. Data Structures and Algorithms 3. Data Structures and Algorithms 4. Data Structures and Algorithms 5. Data Structures and Algorithms Specialization	1. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/data-structures-algorithms?source=search 2. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/msft-data-structures-and-algorithms?source=search 3. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/developer-data-structures-and-algorithms?source=search 4. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/bits-data-structures-and-algorithn 5. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/data-st tsinghua?source=search
4th Semester Two subjects for phygital learning certificate	PCCEC401: Analog & Digital Communication	1. wireless-communications 2.Data Communication 3. Analog and Digital communication 4.Data Communication	1. https://www.coursera.org/learn/wireless-communications 2.https://www.linkedin.com/learning/computer-science-principles-digital-information/digital-communication?utm 3.https://onlinecourses.nptel.ac.in/noc22_ee05/preview 4..https://www.linkedin.com/learning/iot-foundations-low-power-wireless-networking
	PCCEC403: Introduction to Artificial Intelligence and Machine Learning	1. Supervised Machine Learning: Regression and Classification 2.Advanced Learning Algorithms 3. Unsupervised Learning, Recommenders, Reinforcement Learning 4. Artificial Intelligence and Machine Learning (AI/ML)	1. https://www.coursera.org/learn/machine-learning?specialization=machine-learning-introduction 2. https://www.coursera.org/learn/advanced-learning-algorithms?specialization=machine-learning-introduction 3. https://www.coursera.org/learn/unsupervised-learning-recommenders-reinforcement-learning?specialization=machine-learning-introduction 4. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/skills/artificial-intelligence-and-machine-learning-ai-ml?query=AI&source=search

5th Semester Two subjects for phygital learning certificate	PCCECE501: Electromagnetic Waves	1. Physics Fundamentals: Electromagnetics 2. Electrodynamics: Analysis of Electric Fields 3.	1. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/fundamentals-in-electromagnetics?source=search 2. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/electrodynamics-analysis-of-electric-fields?source=sea 3. https://www.coursera.org/videos/desig
	PCCECE504: Data Base Management System	1. Database Structures and Management with MySQL 2. Databases and SQL for Data Science with Python	1. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/database-structures-and-management-with-mysql?source=search#modules 2.https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/sql-data-science?source=search#modules
6th Semester Two subjects for phygital learning certificate	OECEC604A: Deep learning with Generative AI	1. Neural Networks and Deep Learning 2. Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization	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
	HSM675: Principles of Management	1. Principles of Management 2.Principles of Management 3.Principles of business management: Drivers for change 4. Managing Cross-Functional Collaboration as a Leader	1. https://www.coursera.org/learn/principles-of-management/home/module/1 2.https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/principlesofmanagement?source=search 3.https://www.linkedin.com/learning/business-fundamentals-for-customer-success-managers/principles-of-business-management-drivers-for-change?u=229219 4.http://linkedin.com/learning/managing-cross-functional-collaboration-as-a-leader/the-power-of-cross-functional-collaboration?u=229219690

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/iem-faculty-learning-program-rtyr7/learn/embedded-systems-using-c?source=search&collectionId=skill~embedded-syster 2. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/packt-advanced-embedded-systems-with-arduino-r6pus?source=search&collec
	PECECE702A: Microwave Theory and Techniques	Microwave engineering and antennas	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/microwave-antenna?source=search#modules
	PECECE703A: Digital Image and Video Processing	Fundamentals of Digital Image and Video Processing	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/digital?source=search
	OECECE704A: Deep Learning	Learning Deep Learning Specialization	https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/specializations/pearson-learning-deep-learning-from-perception-to-large-language-mod
8th Semester All subjects for phygital learning certificate	PECEC801A: Fiber Optic Communication	1. Fiber Optic Technology and FTTX 2.Understanding Copper and Fiber Optic Communication Systems	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?upsellOrderOrigin=default_guest_learning&trk=default_gues
	PECEC802B: Antenna and Propagation Theory	1. RF/Microwave Design - Antenna Design 2.Antenna Design for IoT Communications 3.Microwave engineering and antennas 4.RF/Microwave Design - S-parameter Analysis	1. https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/rfmicrowave-design---antenna-design?source=search 2.https://www.coursera.org/videos/iot-communications/bigrb?source=search&query=antenna 3.https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/microwave-antenna?source=search 4.https://www.coursera.org/programs/iem-faculty-learning-program-rtyr7/learn/rfmicrowave-design---s-parameter-analysis
	OECEC803B: Cyber Security	1."1. Foundations of Cybersecurity 2. Google Cybersecurity 3. Introduction to Cybersecurity Essentials 4.Cybersecurity Architecture"	1. https://www.coursera.org/professional-certificates/google-cybersecurity 2.https://www.coursera.org/learn/foundations-of-cybersecurity 3.https://www.coursera.org/learn/introduction-to-cybersecurity-essentials 4.https://www.coursera.org/learn/cybersecurity-architecture.
	OECEC804B: Optimization Technique	1. Optimization Technique	1. https://www.udemy.com/course/optimization-for-engineering-students 2. https://www.coursera.org/learn/basic-modeling
	ESP802: Essential Studies for Professionals-VIII	1. 1. Banking & Finance in India 2.Contemporary Issues in World Politics 3.Basics Economics 4. Microeconomics: Foundations and Insights	1. 1. 1. https://www.coursera.org/learn/banking-and-finance-in-india 2.https://www.coursera.org/learn/contemporary-issues-in-world-politics 3.https://www.coursera.org/programs/uemj-passout-batch-2028-54ok2/learn/basics-economics?source=search 4.https://www.coursera.org/programs/uemj-passout-batch-2028-54ok2/learn/microeconomics-foundations-insights-jgu?source=search