Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Department of Electrical and Electronics Engineering
Choice Based Credit System (CBCS) in the Light of NEP-2020

COURSE CODE	CATE-GORY	COURSE NAME	TEACHING &EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
GPEE201	GE	IOT Applications for Automation	60	20	20	30	20	3	0	0	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit.
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):
The objective of this course is to-
1. To Understand the Architectural Overview of IoT.
2. To Understand the IoT Reference Architecture and Real-World Design Constraints
3. To Understand the various IoT Protocols (Datalink, Network, Transport, Session, Service)

Course Outcomes (COs):
After completion of this course the students will be able -
1. To impart knowledge on IoT architecture and various protocols.
2. To implement IoT systems.

Syllabus

UNIT I   **8 Hrs.**
Overview: Overview of Internet of Things: Definition, IOT Vision, Smart Devices, IoT Conceptual Framework, IoT Architectural View, Components of IoT System, Examples of IoT system.

UNIT II   **8 Hrs.**
IOT Technologies: Basic building blocks, Design standards for IOT Systems, Wireless communication technologies: NFC, RFID, Bluetooth, ZigBee, WiFi. Wired Communication technologies: UART, SPI, I2C, Ethernet.

UNIT III   **8 Hrs.**
IOT Devices: Relays, Display, Switches, Actuators, Overview of various sensors such as Light, Temperature, Weight, Gas sensor, Ultra Sonic, Light (LDR, Photo Diode)

UNIT IV   **8 Hrs.**
Prototyping And Designing: Prototyping embedded device software: Arduino platform using IDE, Raspberry Pi IDE, Ethernet and WiFi Library. Software development for Gateways, Internet and web/cloud services.

UNIT V   **8 Hrs.**
IOT Case Studies: Home automation: Smart Lighting, Home intrusion detection. IOT System for Weather Monitoring System and Smart Cities.

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Text Books:
1. Raj Kamal, "Internet of Things: Architecture and Design Principles", McGraw Hill, First Edition, 2018.
2. Vijay Madisetti and Arshdeep Bahga, **"**Internet of Things (A Hands-on- Approach)**",** 1st Edition, University Press, 2019.

References:
1. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, **"**From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence**",** 1st Edition, Academic Press, 2014.
2. Peter Waher**, "**Learning Internet of Things", PACKT publishing, BIRMINGHAM –MUMBAI
3. Bernd Scholz-Reiter, Florian Michahelles, "Architecting the Internet of Things", ISBN 978-3-642 19156-5 e-ISBN 978-3-642-19157-2, Springer

Chairperson	**Chairperson**	**Controller of Examination**	**Joint Registrar**
Board of Studies	**Faculty of Studies**	**Shri Vaishnav Vidyapeeth**	**Shri Vaishnav Vidyapeeth**
Shri Vaishnav Vidyapeeth	**Shri Vaishnav Vidyapeeth**	**Vishwavidyalaya, Indore**	**Vishwavidyalaya, Indore**
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