

ACADEMIC LESSON PLAN OF WINTER 2025

Discipline: CE & IoT

Semester: 3rd

Name of the Teaching Faculty: SANJAY KUMAR JENA

Subject: Introduction to Sensor Technology (Course Code: CEIPC 209/TH5)

No. of Days/Week Class Allotted: 03

Semester Duration: From 14/07/2025 to 15/11/2025

No. of Weeks: 15

Week	Class Day	Topics to be Covered
1st	1st, 2nd & 3rd	Unit I: Introduction to Embedded Systems – Definition, difference between embedded and general computing systems, history, classification, and application areas.
2nd	1st, 2nd & 3rd	Purpose, characteristics, and quality attributes of embedded systems.
3rd	1st, 2nd & 3rd	Unit II: Typical Embedded System – Core components: general-purpose and domain-specific processors, ASICs, PLDs, COTS components.
4th	1st, 2nd & 3rd	Memory concepts – ROM, RAM, memory interfaces, shadowing, and selection for embedded systems.
5th	1st, 2nd & 3rd	Sensors and actuators; on-board and external communication interfaces.
6th	1st, 2nd & 3rd	Unit III: RTOS-Based Embedded System Design – Basics of Operating System, types of OS.
7th	1st, 2nd & 3rd	Tasks, processes, threads, multiprocessing, multitasking, and task scheduling.

8th	1st, 2nd & 3rd	Unit IV: Sensors and Transducers – Principles, classification, parameters, and characteristics.
9th	1st, 2nd & 3rd	Mechanical and electromechanical sensors – potentiometers, strain gauges, inductive sensors.
10th	1st, 2nd & 3rd	Capacitive and piezoelectric sensors, thermal and acoustic temperature sensors.
11th	1st, 2nd & 3rd	Magnetic sensors – Hall effect, eddy-current sensors, synchros and resolvers.
12th	1st, 2nd & 3rd	Unit V: Radiation and Smart Sensors – Photo detectors, fiber optic sensors, electro-analytical sensors.
13th	1st, 2nd & 3rd	Smart sensor architecture – excitation, amplification, filters, coding and communication standards.
14th	1st, 2nd & 3rd	Applications of smart sensors – automobile, aerospace, manufacturing, environmental monitoring.
15th	1st, 2nd & 3rd	Revision and Final Discussion – IoT integration and case studies on sensor applications.

Sanjay Kumar Jena

Signature of Faculty

ACADEMIC LESSON PLAN OF WINTER 2025

Discipline: 1st year

Semester: 1st Semester

Name of the Teaching Faculty: SANJAY KUMAR JENA

Subject: Introduction to IT Systems (Course Code: TII 1(b))

No. of Days/Week Class Allotted: 03

Semester Duration: From 14/8/2025 to 15/12/2025

No. of Weeks: 15

Week	Class Day	Topics to be Covered
1st	1st, 2nd & 3rd	Basic Internet skills: Understanding browser, search engines, awareness about Digital India portals.
2nd	1st, 2nd & 3rd	Understanding college portals and general computer hardware components: CPU, Memory, Display, Keyboard, Mouse, HDD, etc.
3rd	1st, 2nd & 3rd	Introduction to Operating Systems: Linux and MS Windows environment.
4th	1st, 2nd & 3rd	Unix Shell and basic Linux Commands.
5th	1st, 2nd & 3rd	Hands-on with Linux file system and vi editor.
6th	1st, 2nd & 3rd	HTML: Structure and syntax, creating a basic webpage.
7th	1st, 2nd & 3rd	CSS: Styling elements and designing personal webpages.
8th	1st, 2nd & 3rd	Advanced HTML & CSS integration.
9th	1st, 2nd & 3rd	Introduction to Office Tools: OpenOffice Writer basics.
10th	1st, 2nd & 3rd	Working with OpenOffice Spreadsheet (Calc).
11th	1st, 2nd & 3rd	Creating presentations with OpenOffice Impress.
12th	1st, 2nd & 3rd	Information Security concepts and best practices.
13th	1st, 2nd & 3rd	Cybersecurity: System protection and safe browsing practices.
14th	1st, 2nd & 3rd	Linux Shell Scripting basics.
15th	1st, 2nd & 3rd	Revision and practical demonstrations.

Sanjay Kumar Jena

Signature of Faculty

