

Branch Name:	Information and Communication Technology
Semester/Year:	Semester IV / Second Year
Subject Title:	Electronics and ICT
Subject Code:	1ET1070402
Pre-requisite:	Basic Electronics, Digital Electronics

Course Objectives:

- To explain basics of analog and digital electronics
- To explain analog and digital circuits
- To explain analog and digital systems
- To study the state of art electronics board like Arduino

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
01	00	02	02	35	15	60	40	150

Subject Contents				
Sr. No	Topic	Total Hours	Weight (%)	
1	Review of basic electronics circuits such as amplifiers and oscillators. Review of Digital circuits such as flip-flops, counters and registers. A-D and D-A converter, Study of basic microcontroller architecture, Introduction to IC based sensors.	20	30	
2	Introduction to the state of art electronics boards such as Arduino and Raspberry pi. Introduction to programming the Arduino and Raspberry Pi Boards.	12	25	
3	Application of the State of Art Electronics Boards such as interfacing LEDs, LCDs, Opto-couplers, Relays, serial communication.	10	25	
4	Introduction to mobile devices and Mobile programming	10	20	

Course Outcome:

After learning the course, the students should be able to:

1. Understand different analog and digital circuits
2. Understand various analog and digital system
3. Understand the state of art electronics boards and program them.

Text Book:

1. The 8051 Microcontroller and Embedded System, Manish Patel, Tata McGraw Hill Education

2. The 8051 Microcontroller, Kenneth J. Ayala, Thomson and Delmar Learning
3. A Hands on Course Using Sensors Using Arduino and Raspberry Pi, Volker Ziemann, CRC Press

List of Practical:

1. Study of Amplifier and Oscillators
2. Study of Flip-flops, Registers and Counters
3. Study of D-A and A-D Converter
4. Study of IC based Sensors
5. Study of Arduino Board
6. Study of Raspberry Pi board
7. Interfacing Sensors with Arduino Board
8. Interfacing Actuators with Arduino Board
9. Interfacing with Raspberry Pi board
10. Mobile Device Programming