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|----------------------------------|---------------------------------------|
| <b>Subject Code : 2CS1010407</b> | <b>Subject Title: EMBEDDED SYSTEM</b> |
| <b>Pre-requisite :</b>           | -                                     |

### Course Objective:

The course aims to provide the knowledge of various embedded software and hardware devices. This course is intended to make students aware about the scientific principles and concepts behind embedded systems.

| Teaching Scheme ( Hours per week) |          |           |        | Evaluation Scheme(Marks) |            |                       |            |                       |            |                       |            |       |
|-----------------------------------|----------|-----------|--------|--------------------------|------------|-----------------------|------------|-----------------------|------------|-----------------------|------------|-------|
| Lecture                           | Tutorial | Practical | Credit | Theory                   |            |                       |            | Practical             |            |                       |            | Total |
|                                   |          |           |        | University Assessment    |            | Continuous Assessment |            | University Assessment |            | Continuous Assessment |            |       |
|                                   |          |           |        | Min. Marks               | Max. Marks | Min. Marks            | Max. Marks | Min. Marks            | Max. Marks | Min. Marks            | Max. Marks |       |
| 3                                 | -        | -         | 3      | 28                       | 70         | 12                    | 30         | -                     | -          | -                     | -          | 100   |

| Subject Contents |                                                                                                                                                                                                                                                                                          |             |            |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|
| Sr. No.          | Topics                                                                                                                                                                                                                                                                                   | Total Hours | Weight (%) |
| 1.               | <b>An Overview of Embedded Software:</b> Definition of Embedded System, Categories of Embedded System, Characteristics of embedded system, Advantage and Disadvantages of embedded system, Requirements of Embedded System, Applications of Embedded System.                             | 10          | 20         |
| 2.               | <b>Structure of an Embedded System:</b> Basic Structure of an Embedded System, Processors in a System, Types of Processors. <b>Embedded system Development Tools:</b> Host & Target Machine, Linker/Locators for embedded Software and Getting Embedded Software into the Target System. | 10          | 20         |
| 3.               | <b>Embedded Hardware System:</b> Hardware Architecture, Processor, Memory, Latch & Buffers, Crystal, Reset Circuit, Watchdog timer, Chip-select logic circuit.                                                                                                                           | 10          | 20         |
| 4.               | <b>ADC and DAC Devices:</b> ADC & DAC, Display Units, Keypads, Communication Interfaces, Programmable logic devices.                                                                                                                                                                     | 9           | 20         |
| 5.               | <b>Embedded Software Development Process:</b> Determine the requirements, Design the system architecture, Choose the operating system, Choose the processor, Choose the development platform and Choose the programming language.                                                        | 9           | 20         |

### Course Outcomes:

At the end of this course, the student would be able to :

- Understand the concepts and Architecture of Embedded Systems.
- Select a proper Microcontroller for a particular application.
- Understand the I/O and device driver interfaces to embedded processors with networks, multimedia cards.
- Learn Real-time resource management techniques.

### List of References:

1. Programming for Embedded System – Dreamtech Software team. Wiley Publishing
2. An Embedded Software Primer – Devid E. Simon. Low Price Edition

### E-Resources / Web Links:

- [https://www.tutorialspoint.com/embedded\\_systems/index.htm](https://www.tutorialspoint.com/embedded_systems/index.htm)
- <https://www.javatpoint.com/embedded-system-tutorial>