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**I Year II Semester**

**Code: 17ES211**     **0   3   2**

## EMBEDDED SYSTEM DESIGN LAB

1. The Students are required to write the programs using C-Language according to the Experiment requirements using RTOS Library Functions and macros ARM-926 developer kits and ARM-Cortex.
2. The following experiments are required to develop the algorithms, flow diagrams, source code and perform the compilation, execution and implement the same using necessary hardware kits for verification. The programs developed for the implementation should be at the level of an embedded system design.
3. The students are required to perform at least SIX experiments from Part-I and TWO experiments from Part-II.

**List of Experiments**:

**Part-I: Experiments using ARM-926 with PERFECT RTOS**
1. Register a new command in CLI.
2. Create a new Task.
3. Interrupt handling.
4. Allocate resource using emaphores.
5. Share resource using MUTEX.
6. Avoid deadlock using BANKER"S algorithm.
7. Synchronize two identical threads using MONITOR.
8. Reader"s Writer"s Problem for concurrent Tasks.

**Part-II: Experiments on ARM-CORTEX processor using any open source RTOS.**
**(Coo-Cox-Software-Platform)**
1. Implement the interfacing of display with the ARM- CORTEX processor.

2. Interface ADC and DAC ports with the Input and Output sensitive devices.

3. Simulate the temperature DATA Logger with the SERIAL communication with PC.

4. Implement the developer board as a modem for data communication using serial port communication between two PC"s.

**Lab requirements software:**
1. Eclipse IDE for C and C++ (YAGARTO Eclipse IDE), Perfect RTOS Library, COO-COX Software Platform, YAGARTO TOOLS, and TFTP SERVER.
2. LINUX Environment for the compilation using Eclipse IDE & Java with latest version

**Hardware:** The development kits of ARM-926 Developer Kits and ARM-Cortex Boards.
Serial Cables, Network Cables and recommended power supply for the board.