**ASSIGNMENT TOPICS**

Course Title: Microcontroller and Embedded Systems      Course Code: 21CS43

Faculty Name: Sahana M

| Sl. No | Topics | USN | | |
|---|---|---|---|---|
| 1 | Operating System Basics | 1BI20AI063 | 1BI21AI023 | 1BI21AI046 |
| 2 | Types of Operating Systems | 1BI21AI001 | 1BI21AI024 | 1BI21AI047 |
| 3 | Task, Process | 1BI21AI002 | 1BI21AI025 | 1BI21AI048 |
| 4 | Threads | 1BI21AI003 | 1BI21AI026 | 1BI21AI049 |
| 5 | Multiprocessing and Multitasking | 1BI21AI004 | 1BI21AI027 | 1BI21AI050 |
| 6 | Task Communication | 1BI21AI005 | 1BI21AI028 | 1BI21AI051 |
| 7 | Task Synchronization Issues – Racing and Deadlock, Concept of Binary and Counting Semaphores | 1BI21AI006 | 1BI21AI029 | 1BI21AI052 |
| 8 | How To Choose an RTOS | 1BI21AI007 | 1BI21AI030 | 1BI21AI053 |
| 9 | Integration And Testing of Embedded Hardware and Firmware | 1BI21AI008 | 1BI21AI031 | 1BI21AI054 |
| 10 | Disassembler/ Decompiler, Simulator | 1BI21AI009 | 1BI21AI032 | 1BI21AI055 |
| 11 | Emulator and Debugging Techniques | 1BI21AI010 | 1BI21AI033 | 1BI21AI056 |
| 12 | Target Hardware Debugging | 1BI21AI011 | 1BI21AI034 | 1BI21AI057 |
| 13 | Boundary Scan | 1BI21AI012 | 1BI21AI035 | 1BI21AI058 |
| 14 | Application specific integrated circuits, commercial off-the-shelf components | 1BI21AI013 | 1BI21AI036 | 1BI21AI059 |
| 15 | Programmable logic devices | 1BI21AI014 | 1BI21AI037 | 1BI21AI060 |
| 16 | Memory ROM | 1BI21AI015 | 1BI21AI038 | 1BI21AI061 |
| 17 | Memory RAM | 1BI21AI016 | 1BI21AI039 | 1BI21AI900 |
| 18 | Memory according to the type of interfaces, memory shadowing, memory selection for embedded system | 1BI21AI017 | 1BI21AI040 | 1BI22AI400 |
| 19 | Sensors, Actuators, LED, 7 segment LED display | 1BI21AI018 | 1BI21AI041 | 1BI22AI401 |
| 20 | stepper motor, Keyboard, Push button switch, | 1BI21AI019 | 1BI21AI042 | 1BI22AI402 |
| 21 | Communication Interface (onboard communication interfaces) | 1BI21AI020 | 1BI21AI043 | 1BI22AI403 |
| 22 | Communication Interface (external communication interfaces) | 1BI21AI021 | 1BI21AI044 | 1BI22AI404 |
| 23 | Other system components | 1BI21AI022 | 1BI21AI045 | 1BI22AI405 |