**K. K. Wagh Institute of Engineering Education and Research, Nashik.**

**Department of Computer Engineering**

**Academic Year:** 2023– 2024  **Semester:** I

**Course Name:** Laboratory Practice I **Course Code:** 310248

**Class:** TE  **Division:** A & B

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| **Sr. No** | **Problem Statements** | **Mapping**  **With CO** |
| **Part I: System Programming and Operating System** | | |
| **Group A** | | |
| 1 | Design suitable Data structures and implement Pass-I and Pass-II of a two-pass assembler for pseudo-machine. Implementation should consist of a few instructions from each category and few assembler directives. The output of Pass-I (intermediate code file and symbol table)  should be input for Pass-II. | CO1 |
| 2 | Design suitable data structures and implement Pass-I and Pass-II of a two-pass macro- processor. The output of Pass-I (MNT, MDT and intermediate code file without any macrodefinitions) should be input for Pass-II. | CO1 |
| **Group B** | | |
| 3 | Write a program to simulate CPU Scheduling Algorithms: FCFS, SJF (Preemptive), Priority (Non-Preemptive) and Round Robin (Preemptive). | CO2 |
| 4 | Write a program to simulate Memory placement strategies – best fit, first fit, next fit and worst fit. | CO2 |
| 5 | Write a program to simulate Page replacement algorithm. | CO3 |
| **Part II: Elective I** | | |
| **Internet of Things and Embedded Systems** | | |
| 6 | Write an application using Raspberry-Pi /Arduino to detect obstacle using IR sensor and notify user using LEDs. | CO4 |
| 7 | Write an application using Raspberry-Pi to read the environment temperature. If temperature crosses a threshold value, generate alerts using LEDs. | CO5 |
| 8 | Write an application using Raspberry-Pi to capture and store the image. | CO5 |
| 9 | Create a small dashboard application to be deployed on cloud. Different publisher devices can publish their information and interested application can subscribe. | CO6 |
| **Human Computer Interface** | | |
| 6 | Design a paper prototype for a selected Graphical User Interface using GOMS modelling technique | CO4 |
| 7 | Design a User Interface in python | CO5 |
| 8 | To redesign existing Graphical User Interface with screen complexity | CO5, CO6 |

**Course Teacher ModuleCoordinator ProgrammeCoordinator, Head**

**Dept. of Computer Engg.**