Learning Module

Project Name: 8051 & ARM7 based learning modules on Fire Bird V Robot
Suggested By: Deepa
Mentor Name: Deepa/Rutuja
Interns Required: 3 students

Task List:

1. Designing and develop learning modules which is mapped with university curriculum.
2. Make documents and video tutorial of individual module.

Task List:

Task No.	Task	Deadline
1	Learn 8051 based Fire Bird V Robot.	3 days
2	Go through the experiments, explore & compile to generate .hex file.	2 days
3	Prepare experiments based on the modules given. Also, they will come up with their innovative ideas of experiments to enhance programming skills. "One activity suggested by us and two will be designed by them. Create step-by-step document and video tutorial, explaining the process. Modules are:	
4	1. Loading program USB to serial 2. IO Interfacing	2 days
5	3. Motors and types of motors, Experiments on DC motor 4. PWM	3 days
6	5. Interrupts 6. Position Encoder	3days
7	7. LCD Interfacing 8. Interfacing ADC 9. Adaptive Cruise Control	4 days
8	10. USB to serial communication 11. Wireless communication using ZigBee	5 days
9	12. Challenge Day- Design a small theme where you cover the concepts covered above.	4 days
10	Make report and folder containing proper documentation, experiments and video tutorial of each module.	3 days

Task No.	Task	Deadline
1	Learn ARM7 based Fire Bird V Robot.	3 days
2	Go through the experiments, explore & compile to generate .hex file.	2 days
3	Prepare experiments based on the modules given. Also, they will come up with their innovative ideas of experiments to enhance programming skills. "One activity suggested by us and two will be designed by them. Create step-by-step documents and video tutorial, explaining the process. Modules are:	
4	1. IO Interfacing 2. Interfacing LED	3 days
5	3. DC Motor, Servo Motor Control 4. Pulse Width Modulation (PWM)	3 days
6	5. Position Encoder 6. LCD Interface	3days
7	7. Counting external events with on chip counters 8. Real Time Clock (RTC)	3days
8	9. Relay and Buzzer Control for alarm events, 10. On chip ADC/DAC SPI / I2C / UART	4 days
9	11. Interface Bluetooth 12. Interface Zig-bee	3 days
10	13. Challenge Day- Design a small theme where you cover the concepts covered above.	4 days
11	Make report and folder containing proper documentation, experiments and video tutorial of each activity.	3 days

Prerequisite: AVR Programming

Hardware Required: Fire Bird-V robot with 8051 adapter board, ARM7 adapter board

Software Required: Keil-U-Vision, Flash Magic

Deliverables/ Acceptance:

1. Folders containing experiment file, documentation and step by step video tutorial.

References:

Hardware manual, Software manual and related documents of 8051 and ARM7 microcontroller will be provided to you.

Sample format of will be shared with you.