NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE PLAN – PART I				
Course Title	Micro-controller Laboratory			
Course Code	EE LR 16	No. of Credits		02
Course Code of Pre-requisite subject(s)	EEPC22			
Session	January 2022	Section		B
Name of Faculty	Dr. Ankur Singh Rana	Department		EEE
Email	ankur@nitt.edu		Telephone no.	+91-9910478111
Course Type	√ Core course		Elective course	

Syllabus (approved in BoS)

List of Experiments:

- An assembly language program to add, subtract, multiply and divide.
- An assembly language program to generate 10 KHz square wave.
- Study and interface display devices like LCD, LED and 7-Segment display.
- Study of implementation of steeper motor angle control.
- Study of implementation of DC Motor control using PWM method.
- Study and observation of Position control of Servo Motor.
- Study of Programming and Transmission and Reception of data through serial port.
- To study implementation and programming of Pressure measurement.
- To study implementation and programming of Temperature measurement.

COURSE OBJECTIVES

To train the students to use micro-controller for computational and logical applications. Also, this course prepares the students to provide solutions to real-time problems.

COURSE OUTCOMES (CO):

Upon completion of the course, the student will be able to	Aligned Programme Outcomes (PO)
1. Accomplish arithmetic and logical operations with micro-controllers	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PO13, PO14.
2. Generate firing pulses for various control applications related to electrical machines and power electronics.	
3. Illustrate various interfacing techniques related to real-time applications using micro-controllers.	
4. Design and implement control circuitry using micro-controllers for any engineering and real world problems.	

COURSE PLAN – PART II

COURSE OVERVIEW

This is a course to provide exposure and hands-on training to the students on practical implementations of processors and controllers in addition to the programmable devices like FPGAs.

COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	**Week/Contact Hours**	**Topic**	**Mode of Delivery**
1	**Week 1**	Lab Introduction to know the about the experiments.	Online Mode
2	**Week 2**	Arithmetic programming	Online Mode
3	**Week 3**	Programming to play with numbers	Online Mode
4	**Week 4**	Waveform generation	Online Mode
5	**Week 5**	Peripheral interfacing display devices like LCD, LED and 7-Segment display	Online Mode
6	**Week 6**	Implementation of steeper motor angle control	Online Mode
7	**Week 7**	Implementation of DC Motor control using PWM method	Online Mode
8	**Week 8**	Implementation of Position control of Servo Motor	Online Mode
9	**Week 9**	Study of Programming and Transmission and Reception of data through serial port	Online Mode
10	**Week 10**	Implementation and programming of Pressure/ Temperature measurement	Online Mode
11	**Week 11**	Mini project evaluation	Online Mode
12	**Week 12**	Mini project evaluation	Online Mode

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	**Mode of Assessment**	**Week/Date**	**Duration**	**% Weightage**
1	Continuous Session Assessment (CSA)* (Program, Execution & Result)	Every week	--	40
2	Report/Viva	Every week	--	10
CPA	Compensation Assessment*	--	--	--
3	Mini project Evaluation	Week 11/12	--	20
4	Final Assessment – Viva Test/ Hands on program Exectution/ MCQ	At the end of the semester	--	30

*** If an experiment of a particular session (Week 1) is incomplete, it can be carried over to the immediate subsequent week (Week 2) only; which will serve as the time for re-assessing the experiment. However, the maximum marks that will be awarded is as given below:**

S.No.	Status	Program	Execution	Result
1.	Program verfication, Execution and Results – all done in **Week 1**	25	10	05
2.	Program verification done – **Week 1** Execution and Results – **Week 2**	15	05	05
3.	Program verfication, Execution and Results – all done in **Week 2**	05	05	05
4.	Program verification alone done in **Week 2.** Execution and results not obtained in **Week 2** also.	05	00	00

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

Feedback from the students during class committee meetings
End semester feedback on Course Outcomes

COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, academic honesty and plagiarism etc.)

MODE OF CORRESPONDENCE (email/ phone etc)

1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through their webmail only.
2. Queries to the course teacher shall only be emailed to ankur@nitt.edu

ATTENDANCE

1. Attendance will be taken by the faculty in all the lab sessions.
2. At least 75% attendance in each course is mandatory.
3. A maximum of 10% shall be allowed under On Duty (OD) category.
4. Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

COMPENSATION ASSESSMENT

If a student is absent for a lab session for a genuine reason, it will be considered and compensation will be given in the next immediate session itself. However, the honesty and genuineness of the reason will be analysed and decided by the course faculty. Also, a new question will be given for the student.

ACADEMIC HONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

FOR APPROVAL

Dr. Ankur Singh Rana
Course Faculty_____

S. Magesh waran
(Dr. S. MAGESHWARAN)
CC-Chairperson_____ **HOD** _____