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 2023	Section	B
Name of Faculty	Mr. Anshuman Patwa Mr. Ganesh Babu Mr. Abhaya Kumar Sahoo	Department	EEE
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Course Type	√ Core course	Elective course	

Syllabus (approved in BoS)

List of Experiments:

- An assembly language program to add and subtract two numbers.
- An assembly language program to multiply and divide two numbers.
- An assembly language program to arrange numbers in ascending and descending order.
- An assembly language program to perform the basic conversion.
- An assembly language program for scrolling display.
- An assembly language program to generate square wave.
- Study and interface of stepper motor with 8051 Microcontroller.
- Study and interface of DC Motor with 8051 Microcontroller.
- Study and interface of ADC with 8051 Microcontroller.
- Study and interface of DAC with 8051 Microcontroller.

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

1. Accomplish arithmetic and logical operations with micro-controllers

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-processors and micro-controllers for any engineering and real world problems.

CO – PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
CO1	3	3	3	2	1	3	2	2	2	2	1	2	1	1
CO2	3	3	3	3	3	3	2	3	3	2	1	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	2	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	2	3	3	3

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.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1	Basic introduction to microprocessor and microcontroller	Offline Mode
2	Week 2	An assembly language program to add and subtract two numbers with and without carry.	Offline Mode
3	Week 3	An assembly language program to multiply and divide two numbers.	Offline Mode
4	Week 4	An assembly language program to arrange numbers in ascending and descending order.	Offline Mode
5	Week 5	An assembly language program to perform the basic conversion.	Offline Mode
6	Week 6	An assembly language program for scrolling display.	Offline Mode
7	Week 7	An assembly language program to generate square wave.	Offline Mode
8	Week 8	Study of implementation of stepper motor interface with 8051 Microcontroller.	Offline Mode
9	Week 9	Study of implementation of DC Motor interface with 8051 Microcontroller.	Offline Mode
10	Week 10	Study and interface of ADC with 8051 Microcontroller.	Offline Mode
11	Week 11	Study and interface of DAC with 8051 Microcontroller.	Offline Mode
12	Week 12	Mini project evaluation	Offline Mode
13	Week 13	Mini project evaluation	Offline 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	-	50

CPA	Compensation Assessment*	--	--	--
2	Mini project Evaluation	Week 12/13	-	20
3	Final Assessment – Viva Test/ Hands ON program Execution/ MCQ	At the end of the semester	-	30

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

Feedback from the students during class committee meetingsEnd 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 407120003@nitt.edu / 407120053@nitt.edu / 407121001@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 finalassessment 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 will 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 programs.

CamScanner

FOR APPROVAL

Anshuman Patwa (A)
Abhaya Kumare Sahoo (AR)
Ganesh Babu M. (GL)

Course Faculty _____   CC-Chairperson _____   HOD _____ 06/02/23