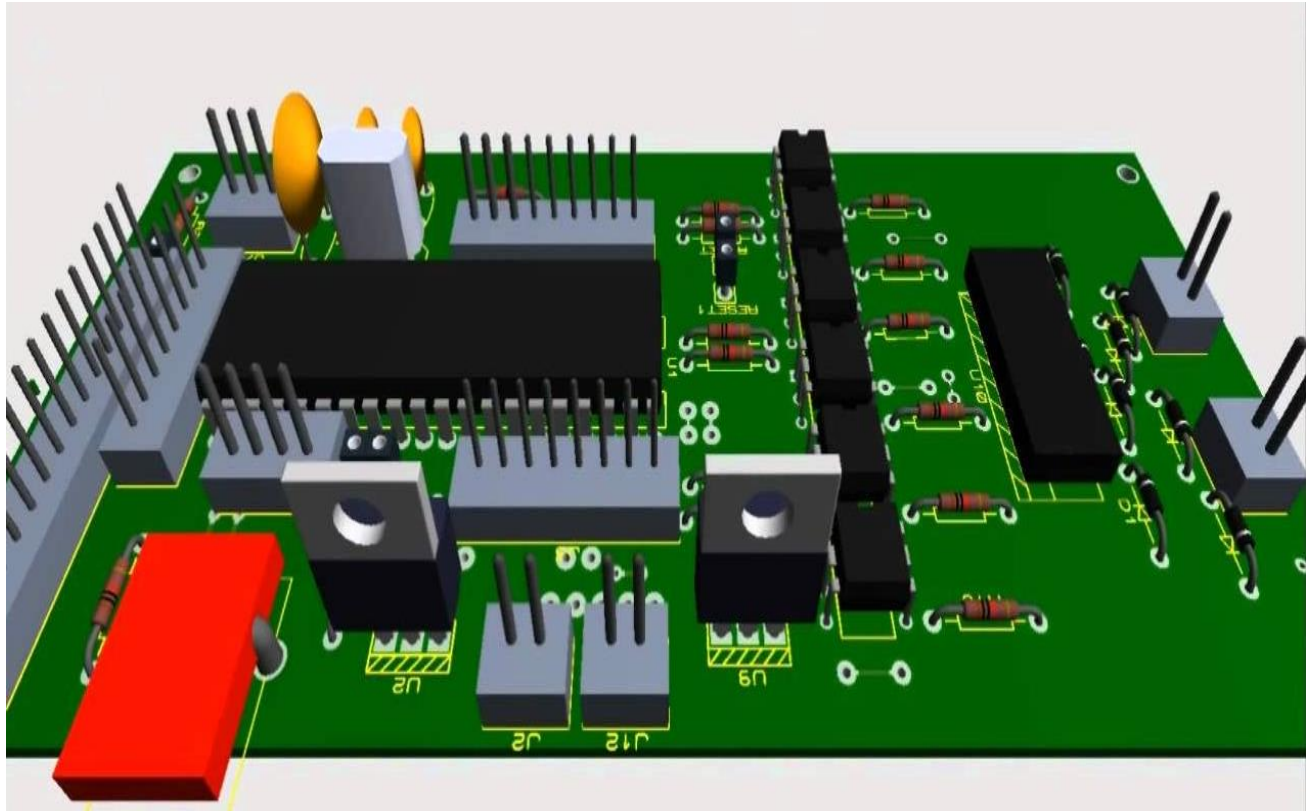


COURSE TITLE-Designing of PCB using Proteus (DPCB)

COURSE CODE-DC-03-03

PERIODS/SEMESTER-35

CREDITS - 3



TIME SCHEDULE

MODULE	TOPICS	PERIODS
1	Software Installation and component familiarization	4
2	Design and Simulation of circuits in Proteus software	8
3	Design and preparation of PCB track layout	10
4	Fabrication process of circuits in zero PCB and copper clad	8
	Activity / Practical / Exam / Viva	5
Total		35

Course Objectives:

Module	Objectives
1	To build the strong foundation in the designing of PC board using proteus software.
2	To provide students with the installation of adding software required for PCB design.
3	To provide good information about the generation of layout of electrical and electronics circuits.
4	To provide students with the building of Printed Circuit Boards with final product.

Course Outcomes

SL	Sub	On completion of this course the student will be able:
1	1	To download and install proteus software
	2	To know the components required for PCB design
2	1	To comprehend the method of circuit simulation and design
3	1	To understand the method of PCB track layout extraction
	2	To know track orientation in both manual and autorouting domain
4	1	To comprehend the procedure of track printing on copper clad sheet
	2	To understand etching, drilling and soldering practice

SPECIFIC OUTCOMES

SL NO	TOPICS	CO	Taxonomy Level
MODULE 1			
1	Introduction to proteus software	1	Remember
2	Familiarisation of PCB components	2	Understand
3	Installation of Proteus software	1	Understand
4	Testing of Components	2	Apply
5	Safety precautions in PCB Design	2	Understand
SL NO	TOPICS	CO	Taxonomy Level
MODULE 2			
1	Adding library and packages to software	1	Apply
2	Familiarizing with component and rating selection	1	Analyse
3	Designing and simulating of electronic circuits	1	Create
4	Integrated circuit based simulation and programming	1	Create

5	Troubleshooting	1	Analyse
6	Exporting the simulated circuit to pdf	1	Understand

SL NO	TOPICS	CO	Taxonomy Level
MODULE 3			
1	Design and preparation of PCB track layout	1	Create
2	Autorouting and layout extraction	2	Apply
3	Practise via manual routing on PCB track	2	Analyse
4	3D visualization of the prepared track	1	Apply
5	Track exportation to top/bottom copper domain	1	Analyse

SL NO	TOPICS	CO	Taxonomy Level
MODULE 4			
1	Printing of design on copper clad sheet using heat transfer method	1	Create
2	Etching of process using FeCl ₃	2	Apply
3	Drilling of circuit board	2	Apply
4	Component affixing and soldering on the prepared board	2	Apply
5	Testing and Calibration	1	Evaluate
6	Circuit design and fabrication in zero PCB	2	Create

Bloom's Taxonomy Domain	Percentage Distribution
Remembering- R	4.45%
Understanding- U	18.18%
Applying-P	31.81%
Analysing- A	18.18%
Evaluating-E	4.45%
Creating - C	22.72%

Marks Distribution

Attendance	Exam	Report	Activity / Practical	Viva	Total
20	20	10	40	10	100

Reference Books

- Development Environment for PIC Microcontroller: Proteus and MikroC step by step- Ashraf Almadhoun.
- Proteus PCB design examples-ARES-George Shopov.

Video Resources

- Circuit simulation in proteus- www.youtube.com/watch?v=w0B3pNtybvU
- PCB track designing using proteus- www.youtube.com/watch?v=gqGz8sLdCPI
- Preparation of PCB using etching- www.youtube.com/watch?v=FXUIBdK6G2Q

Grading System

Grade	Grade Point	Mark Range
S	10	mark > 90 %
A	9	80% < mark < 90%
B	8	70% < mark < 80%
C	7	60% < mark < 70%
D	6	50% < mark < 60%
E	5	40% < mark < 50%
F	0	mark < 40%

Note :Students securing Grade point of 5 or more will be treated as qualified in this course.

Employment Opportunities:

1. PCB Designer/supervisor.
2. Embedded system Design Engineer.
3. Electrical and Electronics equipments maintenance Engineer.
4. Electrical Equipment maintenance Engineer in PCB level.
5. Domestic Equipment Design Engineer.