



AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING

Approved by All India Council for Technical Education - New Delhi, Affiliated to Anna University, Chennai
NAAC Accredited Institution

"Nizara Educational Campus", Muthapudupet, Avadi - IAF, Chennai - 600 055.

ANNA UNIVERSITY COUNSELLING CODE : 1101



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Dated on: 30/05/2023

CIRCULAR

FACULTY MEMBERS AND STUDENTS

We have planned to conduct Value Added course in our department on the topic "PCB DESIGN AND FABRICATION" from 01/6/2023 to 23/6/2023 therefore, I request all the Faculty members and students to attend the course and make utilization of the course for your future.

Resource Person:

BALAMURGAN S

STANFORD INDIA BIODESIGN

FELLOW SCHOOL OF INTERNATIONAL BIODESIGN

AIIMS NEW DELHI

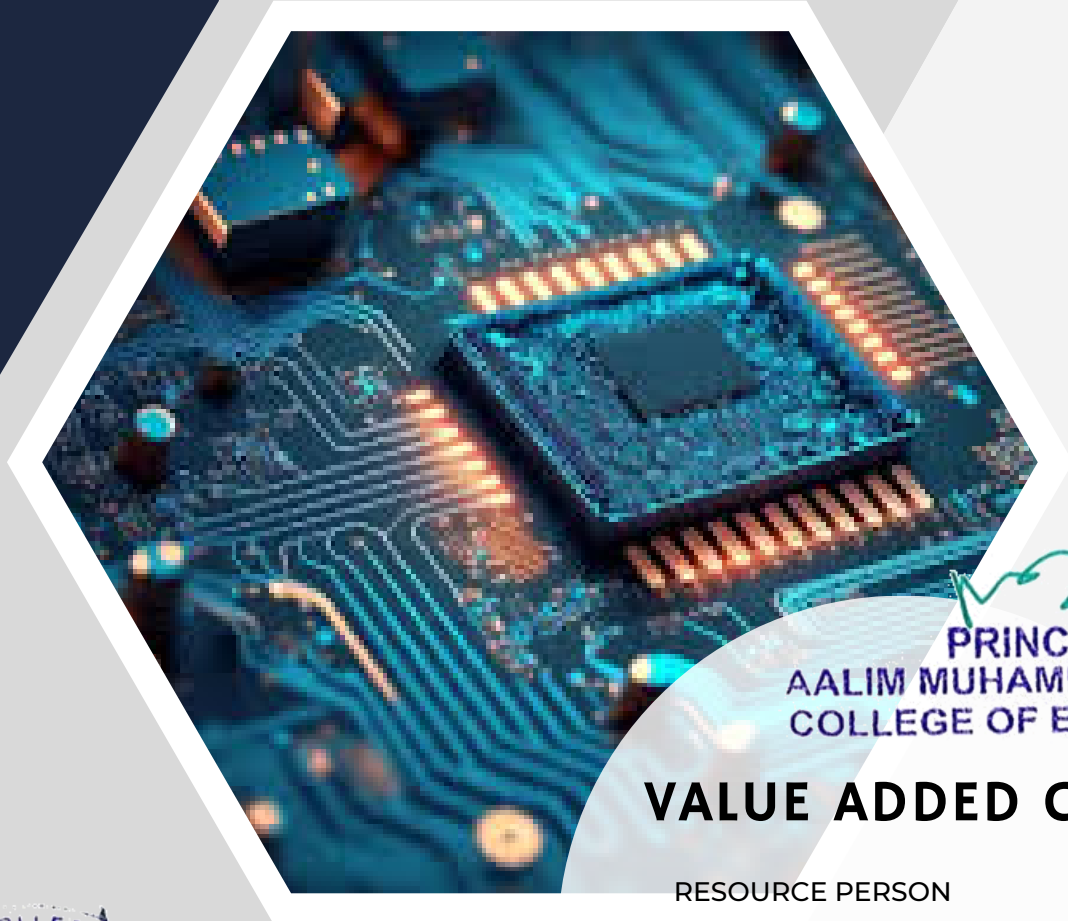
*Permitted to organize
the programme
with
30/5/2023*

*A.S. Salma Banu
30/05/23*

Prof. Dr. A.S.SALMA BANU
HoD/ECE



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PCB DESIGN & FABRICATION

01/06/23 to 23/06/23
Timing: 4.00-6.00p.m.



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VALUE ADDED COURSE

RESOURCE PERSON
Bala Murugan. S
Standford- India
Bio design fellow
School of International Bio design
AIIMS, New Delhi.

Prof.Dr. A. S. Salma Babu
HOD/ECE

Prof. Dr. S. Sathish
Principal

Alhaj.S.Segu Jamuludeen
Secretary & Correspondent

Place: Chennai
Date:24 /05/2023

From,

Head of the Department
Department of ECE
Aalim Muhammed Salegh College of Engineering
Avadi IAF, Muthapudupet
Chennai - 600055

To,

The Principal
Aalim Muhammed Salegh College of Engineering
Avadi IAF, Muthapudupet
Chennai - 600055

Respected Sir,

Sub: Requisition for the approval to conduct Value Added course in our ECE department – Reg.

We wish to conduct Value Added course in our ECE department on the topic
“PCB DESIGN & FABRICATION” a Guest Lecture Series From 01/06/2023 to 23/06/2023.

Resource Person:

S.BALAMURUGAN
STANFORD INDIA BIODESIGN
FELLOW SCHOOL OF INTERNATIONAL BIODESIGN
AIIMS NEW DELHI

The objective of conducting this Value Added course will give the industry focus in developing skills required by using latest technology advancement in “PCB DESIGN & FABRICATION”. This effort will benefit our Student’s community and bring core strength in engineering field.

Thank you,

Yours truly,



*Permitted to organize
the programme
Date
24/5/23*

A. S. Salmabanu
24/05/23
Professor Dr. A. S. SALMABANU
Head of the Department/ECE

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING VALUE-ADDED COURSE-SUMMARY REPORT

COURSE NAME: PCB DESIGN & FABRICATION

Academic Year: (2022-2023)

Date: 01/06/2023 to 23/06/2023

Time: 4:00 pm to 6:00 pm

No. of Modules: 5

Course Hours: 30

Mode of Conduction: Offline

Speaker: S.BALAMURUGAN

Student Certified: 29

Objective of the Course:

- The "**PCB Design & Fabrication**" course aims to equip participants with the foundational and advanced skills required to design, fabricate, and assemble printed circuit boards (PCBs).
- The course is designed to provide a comprehensive understanding of PCB design principles, fabrication processes, and assembly techniques.
- By the end of the course, participants will be able to create functional PCB designs, manage the fabrication process, and assemble and test PCBs effectively.

Summary of the course:

- This course provides an in-depth exploration of PCB design and fabrication, starting with basic concepts and progressing to advanced techniques.
- Participants will begin with an introduction to PCB design principles and software, followed by hands-on labs where they will create and refine PCB layouts.
- The course covers advanced design considerations, fabrication processes, and assembly techniques. Practical sessions will include working with design tools, fabricating PCB prototypes, and assembling and testing PCBs.
- The course concludes with a focus on advanced topics and emerging trends in PCB technology.

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Course Outcomes:

By the end of the course, participants will be able to:

1. **Understand PCB Design Fundamentals:**
 - Define what PCBs are and explain their functions and applications.
 - Identify different types of PCBs and understand their uses.
2. **Design PCBs Using Industry Software:**
 - Utilize PCB design software (e.g., KiCad, Eagle) to create schematics and PCB layouts.
 - Implement advanced routing techniques and design rules.
 - Generate and interpret Gerber files and fabrication outputs.
3. **Apply Advanced PCB Design Techniques:**
 - Incorporate considerations for signal integrity, power distribution, and thermal management.
 - Design PCBs for manufacturability, including creating mechanical drawings and documentation.
4. **Understand PCB Fabrication Processes:**
 - Describe the steps involved in PCB fabrication, including etching, drilling, and solder masking.
 - Identify different PCB materials and their properties.




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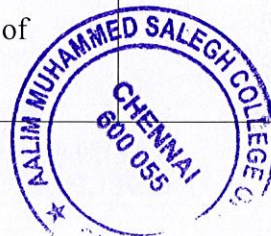
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CERTIFICATE COURSE-PCB DESIGN & FABRICATION

Academic Year: (2022-2023)

COURSE CONTENT:

MODULES	CONTENT	DURATION(Hrs)
MODULE 1	Introduction to PCB Design <ul style="list-style-type: none">• Introduction to PCB Design<ul style="list-style-type: none">• What is a PCB? Definition and Function• PCB Types: Single-Sided, Double-Sided, Multi-Layer• Overview of PCB Applications and Industries• PCB Design Basics<ul style="list-style-type: none">• Components of a PCB: Traces, Pads, Vias, Layers• Understanding Schematic Diagrams• Introduction to PCB Design Software	4
MODULE 2	Advanced PCB Design Techniques <ul style="list-style-type: none">• Advanced PCB Design Considerations<ul style="list-style-type: none">• Signal Integrity and High-Frequency Design• Power Distribution and Grounding Techniques• Thermal Management and Heat Dissipation• Design for Manufacturability (DFM)<ul style="list-style-type: none">• Design Considerations for PCB Fabrication• Understanding Gerber Files and Fabrication Outputs <p>Component Placement and Mechanical Drawing.</p> <ul style="list-style-type: none">• Hands-Advanced PCB Design<ul style="list-style-type: none">• Implementing Advanced Routing Techniques• Applying Design Rules and Error Checking• Generating Gerber Files and Bill of Materials (BOM)• Hands-On Lab: Design for	12



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	Manufacturability <ul style="list-style-type: none"> Reviewing and Finalizing PCB Design for Fabrication Creating Mechanical Drawings and Fabrication Documents 	
MODULE 3	<ul style="list-style-type: none"> PCB Fabrication Overview <ul style="list-style-type: none"> PCB Fabrication Process Steps: Printing, Etching, Drilling, Solder Masking Understanding PCB Materials and Their Properties Types of PCB Fabrication: Prototype, Production Fabrication Techniques <ul style="list-style-type: none"> Introduction to PCB Etching and Drilling Solder Mask and Silkscreen Printing Surface Finish Options (HASL, ENIG, etc.) 	6
MODULE 4	PCB Assembly and Testing <ul style="list-style-type: none"> PCB Assembly Techniques <ul style="list-style-type: none"> Introduction to PCB Assembly Processes: SMD, Through-Hole Soldering Techniques and Tools Component Placement and Reflow Soldering Testing and Debugging <ul style="list-style-type: none"> Basic Testing Methods: Continuity, Insulation Resistance Using Multimeters, Oscilloscopes, and Other Testing Tools Debugging Common PCB Issues 	4
MODULE 5	Advanced Topics and Course Review <ul style="list-style-type: none"> Advanced PCB Topics <ul style="list-style-type: none"> RF and Microwave PCB Design Flex and Rigid-Flex PCB Technologies Emerging Trends in PCB Design and Fabrication PCB Design for Specific Applications <ul style="list-style-type: none"> Designing PCBs for Automotive, Medical, Consumer Electronics Compliance and Certification Requirements. 	4

TOTAL: 30 Hrs



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Value Added Course Tentative Time Table And Schedule

Value Added Course Name: PCB DESIGN AND FABRICATION

Date of Commencement: From 01/06/2023

Timing: 4:00 pm to 6:00 pm

Tentative Date of Exam- 23/06/2023

Tentative Course Schedule - 01/06/2023 to 23/06/2023 (As per following)


No. Of Days: 15 Days

Course Hours: 30

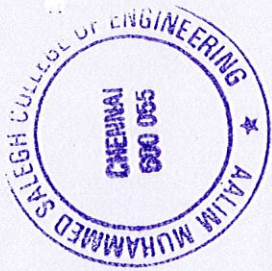
Speaker: Mr. S.BALA MURUGAN

1. Module -1: Introduction to PCD Design– 01-06-2023 & 02-06-2023 – 2 Hours Per day (2 Days) (4 Hrs)
2. Module -2:Advanced PCB Design Techniques – 05-06-2023 to 10-06-2023 – 2 Hours Per Day (6 Days) (12 Hrs)
3. Module -3:PCB Fabrication Overview – 12-06-2023 to 14-06-2023 – 2 Hours Per Day (3 Days) (6 Hrs)
4. Module -4:PCB Assembly & Testing – 15-06-2023 & 19-06-2023 – 2 Hours Per Day (2 Days) (4 Hrs)
5. Module -5:Advanced Topics & Course Review – 20-06-2023 & 23-06-2023 – 2 Hours Per Day (2 Days) (4 Hrs)




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S.No	Reg No	Name of the Student	11/6/23	2/6/23	5/6/23	16/6/23	7/6/23	8/6/23	9/6/23	10/6/23	12/6/23	13/6/23	14/6/23	15/6/23	16/6/23	20/6/23	23/6/23
1	110120106001	AASIQ A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
2	110120106002	AHAMED IRFAN S	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
3	110120106003	ARSHATH MOHAMED S T	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
4	110120106004	DHAUDH BASHA S	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
5	110120106005	FAIZ AHMED B	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
6	110120106006	HILUR HUSSAIN M	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
7	110120106007	KAVITHA S	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
8	110120106008	MARIYAM AFRA K.M.	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
9	110120106009	MOHAMED ASHRAF A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
10	110120106010	MOHAMMED UMAR FAROOQ N	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
11	110120106011	RIYAZ AHAMED M	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
12	110120106012	SHANMUGAPRIYA B	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
13	110120106013	SK SAMIR AHMED	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
14	110120106014	SURIYA K	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
15	110120106015	SYED FAHEEM M	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
16	110120106016	TASLEEM BANU K	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
17	110120106301	AFRIN FATHIMA J	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
18	110120106302	BHARATHI N	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
19	110120106303	FAHAD AHAMED R	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
20	110120106304	MAHENDER S R	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
21	110120106305	MOHAMED IRFANUL HASSAN A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
22	110120106306	MOHAMED OMAR SULTHAN A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
23	110120106307	NAVEEN KUMAR S	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
24	110120106308	PRASATH S	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
25	110120106309	RIZALDEEN A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
26	110120106310	RIZWANA N	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
27	110120106311	RUKHSANA N	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
28	110120106312	SULAIMAN AMZA SAIT A	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am
29	110120106313	VENKATESHWARAN M	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am	Am



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Electronics Pvt. Ltd.

Single-Window Electronic Solutions

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s. balasubramanian
Speaker

Anish Das

Director - Glonix
Electronics Private
Limited



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Glomix

Electronics Pvt. Ltd.
Single-Window Electronic Solutions

Certificate

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VENKATESHWARAN M

has Successfully completed 5 days Value Added Course in "PCB DESIGN AND FABRICATION" From 01/06/2023 to 23/06/2023. We appreciate your hard work & Sincerity towards your course and wish you good luck for your future endeavor.

s balamurugan
Speaker

Anish Das
Director · Glomix
Electronics Private
Limited



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TASLEEM BANU K

has Successfully completed 5 days Value Added Course in "PCB DESIGN AND FABRICATION" From 01/06/2023 to 23/06/2023. We appreciate your hard work & Sincerity towards your course and wish you good luck for your future endeavor.

s balamurugan
Speaker

Anish Das
Director · Glönix
Electronics Private
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Certificate

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SYED FAHEEM M

has Successfully completed 5 days Value Added Course in "PCB DESIGN AND FABRICATION" From 01/06/2023 to 23/06/2023. We appreciate your hard work & Sincerity towards your course and wish you good luck for your future endeavor.

s. balamurugan

Speaker

Anish Das

Director · Glönix
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