

Plot No.1 (A), CNI Complex, Patia, Bhubaneswar – 751024, Odisha, India.

[AFFILIATED TO BPUT, ODISHA]

www.coeb.ac.in

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

ADD-ON COURSE : PCB Design

[Programme: B.Tech, ETC]

Course Objectives:

To introduce some basic fundamental ideas of printed circuit board (PCB) design, Packages of electronic components, Rule for design for manufacturing, PCB Manufacturing Techniques, Wet film and Dry film.

SYLLABUS

Total Lecture Hours: 40

MODULE-I:

[10 Hours]

Printed circuit Board Design: Study of Packages of Electronic Components . History of Printed Circuit Boards . Various types of Printed Circuit Boards-Single Sided Boards, Double Sided Plated through Hole Boards, multilayer Boards.

MODULE-II

[14 Hours]

Printed Circuit Board Design Methods: Rules for single and Double Sided Board. Schematic diagram Entry in PCB Design tool/S/W. Layout Design, Routing methods. Guideline for Artwork Generation. Generation of various Manufacturing Documents/ Output file generation. Component Library management in PCB Design tool.

MODULE-III

[16 Hours]

PCB Manufacturing Techniques: Film Master generation methods: Study of photographic Film, Exposing and Developing Process, Cleaning Method of base materials before pattern transfer-Manual and Mechanical Cleaning Methods, Mechanical methods required in manufacturing of PCBs like punching, drilling, milling and routing.

Course Outcomes: After completion of the course, the students will be able to

CO1: Explore different aspect of Printed Circuit Board Design and fabrication.

CO2: Design various types of PCBs. Schematic Design. entry Rules for Schematic Entry, Component Layout

CO3: Implement the placement Rules, routing techniques for single sided.

CO4: Explore processing of design and fabrication documents.

CO5: Design and fabricate their own PCB for their Project and can also work in PCB Designing and Fabrication area.

Evaluation Process:

- 1. Attendance for the course is 75%, which is mandatory.
- 2. Minimum qualifying marks percentage for the course is 50.
- 3. Certificate will be issued after successful completion of course and assessment processes.

Learning resources:

Suggested Books:

- 1. Printed Circuit Boards: Design, Fabrication, and Assembly by R. Khandpur.
- 2. Fundamentals of Layout Design for Electronic Circuits by Jens Lienig, Juergen Scheible.
- 3. Electronic Product Design by SD Mehta
- 4. Pcb Design & Fabrication by Ramesha Talawar, Mustaq Kunnur

Other Sources:

e-Learning Resources:

- 1. https://www.youtube.com/watch?v=o4zeeEwG7gw&list=PLbRMhDVUMngcwN9HHlOALFj1HYs9T64B
- 2. https://www.youtube.com/watch?v=D7DJkdLdbh8&list-PLbRMhDVUMngcwN9HHlOALFj1HYs9T64B F

Design and Developed by: Prof. Subrat Kumar Mohanty and Prof. Snehasis Dey

College of Engineering Bhubaneswa



DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING COLLEGE OF ENGINEERING BHUBANESWAR

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NOTICE

ADD-ON/CERTIFICATE COURSE

Ref No: COEB/ETC/2019/09

It is for the information of all the students of 3rd/5th/7th semester that the classes for the Add-On/Certificate Courses will commence as per the time table given below.. The registration process for the course will start from 06/08/2019. The interested students to enroll themselves for the course are advised to contact the concerned Course Coordinators for the details.

,001 amator	0 101 0220		Date of
Semester	Course Title	Course Coordinator	Commencement
Semester		Prof. Arpit Sourav Mohapatra	16/08/2019
3rd	PCB Design		15/08/2019
5th	Advances and challenges in telecommunication	Prof . Loknath Sarangi	16/08/2019
7th	Machine Learning Algorithms for Communication	Prof. Sandip Kumar Mishra	16/08/2019
		= 20 ===	

The class timing will be from 5.30 pm to 7.30 pm.

Dept. of ETC Engg.

COEB, Bhubaneswar

Date: 05/08/2019

Copy to:

- 1. Office of the Chairman/ Vice-Chairman for kind information.
- 2. Office of the Executive Director for kind Information.
- 3. Office of the Registrar for kind Information.
- 3. Office of the Principal for kind information.
- 4. Departmental Notice Board.
- 5. Guard File

Head of the Department

College of Engineering Bhubaneswar



COLLEGE OF ENGINEERING BHUBANESWAR (COEB) ADD-ON COURSE

STUDENT ENROLLMENT SHEET

Name of the Department: Electronics and	Telecommunication Engineering
Course Title: PCB Design	Academic Year: 2019-20
Semester: 3rd	Academic Year: 2019-20

Student's Declaration/Undertaking

- 1. I do hereby undertake to participate in the above mentioned add on course.
- 2.I do hereby, promise to abide by the admissible rules and regulations, connecting discipline, attendance, etc. of the department, and also to follow the code of Conduct prescribed for the students of the institute, as in force from time to time.

SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Signature of the student
1	1801219018	ASHISH KUMAR PARIDA	Ashish Uceman Paneda
2	1801219021	ASIF KHAN	Asif whan
3	1801219042	DAVID HANSDAH	Jita Mistrat
4	1801219062	JITU MISTRY	Jila Mistry
5	1801219065	KALYANI SWAGATIKA DASH	Kalyeni Dash
6	1801219079	MANORANJAN SAHOO	Manoranjan Sahoo
7	1801219082	MEGHANTH NAIK	Meghanth nail
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11	1801219112	PURNENDU SUNANI	P. Sunani
12	1801219130	SANKAT MOCHAN BISWAL	Sankat Mochan Bisucal
13	1801219163	SUSHREE SANGITA	Sceshree Sangeta.
14	1801219170	TOKAN BEHERA	Jolean Behera
15	1801219227	ANANYA SAMAL	Ananya Sawel
16	1801219228	BIJAY KUMAR PADHI	Bisayor Mr. Padhi
17	1801219229	BISHNUPRIYA MOHARANA	Bishnerpring mohanana
18	1801219230	MAHESH PRASAD MISHRA	Morresh Hearnel MBMs
19	1801219231	NISHI TIRKEY	Nimi Tirkey
20	1801219232	SMRUTIREKHA MARANDI	Smulileather
21	1801219233	SUBHASHREE BIDYASAGAR	Subhashnee Bidyasagan

PRINCIPAL
College of Engineering Bhubaneswar

A. Mohapatra

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[AFFILIATED TO BPUT, ODISHA]

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING ADD ON COURSE_

STUDENT ATTENDANCE SHEET

Programme: B.Tech in ETC

Semester: 3rd Academic Year: 2019-20

Name of the course: PCB Design

Course Code (if any):

Duration: 40 hours			Date & Signature of the Student
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 16 8 19 Date: 19 8 19 Date: 20 8 19 Date: 21 8
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College of Engineering Bhubaneswar



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Signature	e of the Course Coor		A. Mohapathe	A. Mohapatna	A. Mhapatra	A · Mohapatra



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Programme: B.Tech in ETC

Semester: 3rd Academic Year: 2019-20

Name of the course: PCB Design

Course Code (if any):

Duration: 40 hours		ins	Date & Signature of the Student	
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 22/8/19 Date: 26/8/19 Date: 28/8/19 Date: 29/8/19	
1	1801219018	ASHISH KUMAR PARIDA	A LI	
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SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 10/9/19 Date: 11/9/19 Date: 12/9/19 Date: 13/9/19		
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STUDENT ATTENDANCE SHEET

Signature of the Course Coordinator		A · Mohaputha	A. Mohapatra	A. Mo Lapatra	A. Mohapatra	
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Programme: B.Tech in ETC

Semester: 3rd Academic Year: 2019-20

Name of the course: PCB Design

Course Code (if any):

Duratio	Duration: 40 hovens			Date & Signature of the Student		
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 16/9/19	Date: 17/9/19	0 0 0 0	Date: 19/9/19
1	1801219018	ASHISH KUMAR PARIDA	Ashiya Manayarda	Ashigh lementaride	Aghush Manuspide	Ashidumatide
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ADD ON COURSE	

STUDENT ATTENDANCE SHEET

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ignature	e of the Course Coor	dinator	A. Mohapatha A. Mohapath	a A. Mohapatra A. Mohapatra



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

PCB Design	РСВ І	as successfully completed the ADD-ON Course titled_
bearing registration number 1801219042	semester Third	of <u>Electronics & Telecommunication Engg.</u> semester <u>Third</u> bearing registration number <u>1801219042</u>
, student of the Departmen	DAH	This is to certify that Mr./Ms. <u>DAVID HANSDAH</u>

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2019-20

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Course-Coordinator

XE.

Principal

PRINCIPAL BALL



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

PCB Design	has successfully completed the ADD-ON Course titled	has
Third bearing registration number 1801219018	of <u>Electronics & Telecommunication Engg.</u> semester <u>Third</u> bearing registration nu	으
IDA, student of the Departmen	This is to certify that Mr./Ms. <u>ASHISH KUMAR PARIDA</u>	This

conducted at College of Engineering Bhubaneswar in the academic year_

TRUE COPY

Course-Coordinator

X

Principal

they to

2019-20



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

conducted at College of Engineering Bhubaneswar in the academic year 2019-20	conducted
has successfully completed the ADD-ON Course titledPCB Design	has succe
Electronics & Telecommunication Engg. semester Third bearing registration number 1801219021	of Elec
This is to certify that Mr./Ms. ASIF KHAN student of the Department	This is to

TRUE COPY

Course-Coordinator

Principal



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

	PCB Design	has successfully completed the ADD-ON Course titled_
on number <u>1801219062</u>	semester Third bearing registration	of <u>Electronics & Telecommunication Engg.</u> semester <u>Third</u> bearing registration r
, student of the Department		This is to certify that Mr./MsJITU MISTRY

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2019-20

Course-Coordinator

Principal



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

of Electronics & Telecommunication Engg. semester Third bearing registration number 1801219079 has successfully completed the ADD-ON Course titled PCB Design
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conducted at College of Engineering Bhubaneswar in the academic year_

2019-20

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Course-Coordinator

Principal

XE.

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