



COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
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.

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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 methods
- 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=PLbRMhDVUMngcwN9HHIOALFj1HYs9T64BF&index=3>
2. <https://www.youtube.com/watch?v=D7DJkLdbh8&list=PLbRMhDVUMngcwN9HHIOALFj1HYs9T64BF>

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


Principal
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H.O.D. ETC Engg.
H.O.D.
Dept. of ETC Engg.
COEB, Bhubaneswar



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NOTICE

ADD-ON/CERTIFICATE COURSE

Ref No: COEB/ETC/2018/08

Date: 07/07/2018

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 **09/07/2018**. The interested students to enroll themselves for the course are advised to contact the concerned Course Coordinators for the details.

Semester	Course Title	Course Coordinator	Date of Commencement
3rd	PCB Design	Prof. Snehasis Dey	18/07/2018
5th	Advances and challenges in telecommunication	Prof. Lokanath Sarangi	18/07/2018
7th	Machine Learning Algorithms for Communication	Prof. Asit Kumar Satapathy	18/07/2018

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

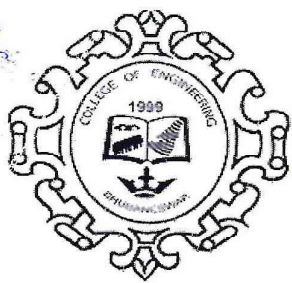
Head of the Department
A.O.S
Dept. of ETC Engg.
COEB, Bhubaneswar

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


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ADD-ON COURSE

STUDENT ENROLLMENT SHEET

Name of the Department: Electronics and Telecommunication Engineering	
Course Title: PCB Design	
Semester: 3rd	Academic Year: 2018-19

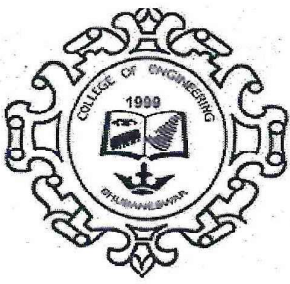
Student's Declaration/Undertaking

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	1701219010	CHANDAN GOUDA	Chandan Gouda
2	1701219018	BHAGYASHREE SAMANTARAY	Bhagyashree Samantaray
3	1701219034	BOSEN BIRUA	BOSEN BIRUA
4	1701219036	BISHAL JHARIAT	Bishal Jhariat
5	1701219037	ABHIRAM DHAR	Abhiram Dhar
6	1701219056	ASHIS KUMAR SHAW	Ashis K. Shaw
7	1701219062	ABHISEK KANUNGO	Abhishek Kanungo
8	1701219069	ABHISHEK MISHRA	Abhishek Mishra
9	1701219076	RANJIT MOHANTY	Ranjit Mohanty
10	1701219089	SONALI RAJAK	Sonali Rajak
11	1701219090	DAYASAGAR MANGAL	Sonali Dayasagar mangal
12	1701219132	SOUMYA RANJAN MISHRA	Soumya Ranjan Mishra
13	1701219133	ABHISHEK KUMAR GUPTA	Abhishek Kumar Gupta
14	1701219134	AKASHDIP NAYAK	Ankita Akashdip
15	1701219135	ANKITA DAS	Ankita Das
16	1701219136	BIRENDRA KUMAR	Birendra Kumar
17	1701219137	DIBYADARSHINI MAHARATHA	Dibyadarshini Maharatha
18	1701219138	MANISH KUMAR	Manish Kumar.
19	1701219139	RAJESH SWAIN	Rajesh Swain
20	1701219140	RATI	Rati
21	1701219141	SHIWANI JHA	Shiwani Jha
22	1701219142	SOURAV CHOUDHARY	Sourav Choudhary
23	1701219143	SOURAV KUMAR MANDAL	Sourav Kumar Mandal
24	1701219144	TARAPRASAD SAHOO	Taraprasad Sahoo
25	1701219145	MEGHA	Megha



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ADD-ON COURSE

STUDENT ENROLLMENT SHEET

26	1701219177	JHADESWAR BADHAI	Jhadgwar Badhai
27	1701219284	BAPU PRADHAN	Bapu Pradhan
28	1701219285	LOPAMUDRA PANI	Lopamudra Pani
29	1701219286	MIKINA JENA	Mikina Jena
30	1701219287	DURGA MOHANTY NIVEDITA	Durga Mohanty Nivedita
31	1701219288	GAZALA PARWEEN	Gazala Parween
Signature of the Course Coordinator			S. Dey


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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
ADD ON COURSE

STUDENT ATTENDANCE SHEET

Programme: B.Tech in ETC

Semester: 3rd Academic Year :2018-19

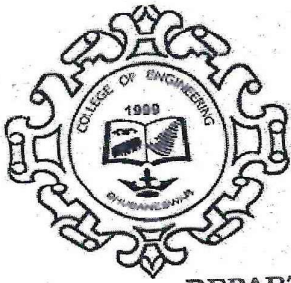
Name of the course: PCB Design

Course Code (if any):

Duration : 40 hours			Date & Signature of the Student			
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 18/7/18	Date: 19/7/18	Date: 20/7/18	Date: 23/7/18
1	1701219010	CHANDAN GOUDA	Chandan Gouda	Chandan Gouda	Chandan Gouda	Chandan Gouda
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21	1701219141	SHIWANI JHA	Shiwani Jha	Shiwani Jha	Shiwani Jha	Shiwani Jha
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Signature of the Course Coordinator			S. Dey	S. Dey	S. Dey	S. Dey

A. Bhuje

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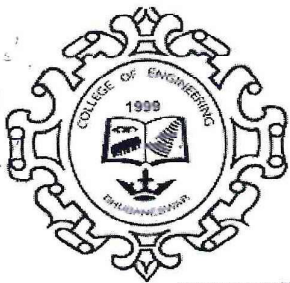
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Signature of the Course Coordinator			S. Deey	S. Deey	S. Deey	S. Deey


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Programme: B.Tech in ETC

Semester: 3rd Academic Year :2018-19

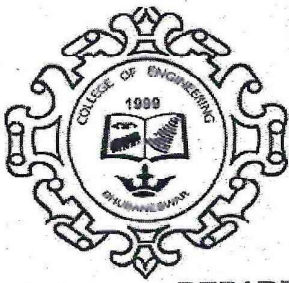
Name of the course: PCB Design

Course Code (if any):

Duration : 40 hours			Date & Signature of the Student			
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(Signature)

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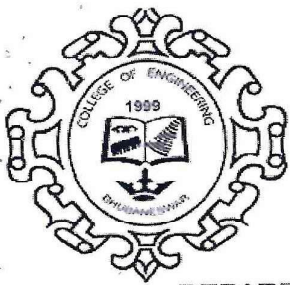
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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
ADD ON COURSE

STUDENT ATTENDANCE SHEET

Programme: B.Tech in ETC

Semester: 3rd Academic Year :2018-19

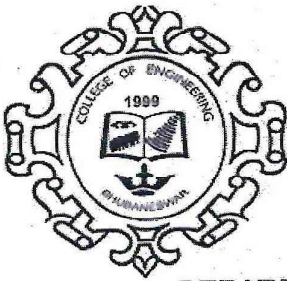
Name of the course: PCB Design

Course Code (if any):

Duration : 40 hours			Date & Signature of the Student			
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 8/8/18	Date: 9/8/18	Date: 10/8/18	Date: 13/8/18
1	1701219010	CHANDAN GOUDA	Chandan Gouda	Chandan Gouda	Chandan Gouda	
2	1701219018	BHAGYASHREE SAMANTARAY	Bhagyashree Samantaray	Bhagyashree Samantaray	Bhagyashree Samantaray	Bhagyashree Samantaray
3	1701219034	BOSEN BIRUA	Bosen Birua	Bosen Birua	Bosen Birua	Bosen Birua
4	1701219036	BISHAL JHARIAT	Bishal Jhariat	Bishal Jhariat		
5	1701219037	ABHIRAM DHAR	Abhiram Dhar	Abhiram Dhar	Abhiram Dhar	Abhiram Dhar
6	1701219056	ASHIS KUMAR SHAW	Ashis	Ashis	Ashis	Ashis
7	1701219062	ABHISEK KANUNGO	Abhisek Kanungo	Abhisek Kanungo	Abhisek Kanungo	Abhisek Kanungo
8	1701219069	ABHISHEK MISHRA	Abhishek Mishra	Abhishek Mishra	Abhishek Mishra	Abhishek Mishra
9	1701219076	RANJIT MOHANTY	Ranjit Mohanty	Ranjit Mohanty	Ranjit Mohanty	Ranjit Mohanty
10	1701219089	SONALI RAJAK	Sonali Rajak	Sonali Rajak	Sonali Rajak	Sonali Rajak
11	1701219090	DAYASAGAR MANGAL	Dayasagar Mangal	Dayasagar Mangal	Dayasagar Mangal	Dayasagar Mangal
12	1701219132	SOUMYA RANJAN MISHRA	Soumyarajan Mishra	Soumyarajan Mishra	Soumyarajan Mishra	Soumyarajan Mishra
13	1701219133	ABHISHEK KUMAR GUPTA	Abhishek Kumar Gupta	Abhishek Kumar Gupta	Abhishek Kumar Gupta	Abhishek Kumar Gupta
14	1701219134	AKASHDIP NAYAK	Akashdip	Akashdip	Akashdip	Akashdip
15	1701219135	ANKITA DAS	Ankita Das	Ankita Das	Ankita Das	Ankita Das
16	1701219136	BIRENDRA KUMAR	Birendra Kumar	Birendra Kumar	Birendra Kumar	Birendra Kumar
17	1701219137	DIBYADARSHINI MAHARATHA	Dibyadarshini Maharatha	Dibyadarshini Maharatha	Dibyadarshini Maharatha	Dibyadarshini Maharatha
18	1701219138	MANISH KUMAR	Manish Kumar	Manish Kumar	Manish Kumar	Manish Kumar
19	1701219139	RAJESH SWAIN	Rajesh Swain	Rajesh Swain	Rajesh Swain	Rajesh Swain

(Signature)

PRINCIPAL
College of Engineering Bhubaneswar



COLLEGE OF ENGINEERING BHUBANESWAR (COEB)

Koustuv Technical Campus, Plot No. 1 (A), Koustuv Square, Infocity Road
Patia, Bhubaneswar-751024, Odisha, India.


[AFFILIATED TO BPUT, ODISHA]

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

ADD ON COURSE _____

STUDENT ATTENDANCE SHEET

20	1701219140	RATI	Rati	Rati	Rati	Rati
21	1701219141	SHIWANI JHA	Shiwani Jha	Shiwani Jha	Shiwani Jha	Shiwani J
22	1701219142	SOURAV CHOUHARY	Sourav choudhary	Sourav choudhary	Sourav choudhary	Sourav choudhar
23	1701219143	SOURAV KUMAR MANDAL	Sourav Kumar Mandal	Sourav Kumar Mandal	Sourav Kumar Mandal	Sourav Kumar mand
24	1701219144	TARAPRASAD SAHOO	Taraprasad Sahoo	Taraprasad Sahoo	Taraprasad Sahoo	Tarapras Sahoo
25	1701219145	MEGHA	Megha	Megha	Megha	Megha
26	1701219177	JHADESWAR BADHAI	Jhadeswar Badh	Jhadeswar Badh	Jhadeswar Badh	Jhadesw
27	1701219284	BAPU PRADHAN	Bapu Pradhan	Bapu Pradhan	Bapu Pradhan	Bapu Pradh
28	1701219285	LOPAMUDRA PANI	Lopamudra Pani	Lopamudra Pani	Lopamudra Pani	Lopamudra
29	1701219286	MIKINA JENA	Mikina Jena	Mikina Jena	Mikina Jena	Mikina J
30	1701219287	DURGA MOHANTY NIVEDITA	Durga Mohanty Nivedita	Durga Mohanty Nivedita	Durga Mohanty Nivedita	Durga Moh Nivedi
31	1701219288	GAZALA PARWEEN	Gazala Parween	Gazala Parween	Gazala Parween	Gazala Parw
Signature of the Course Coordinator			S. Dey	S. Dey	S. Dey	S. Dey


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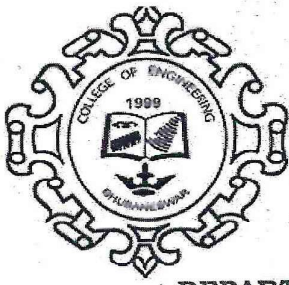
Name of the course: PCB Design

Course Code (if any):

Duration : 40 hours			Date & Signature of the Student			
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date: 17/8/18	Date: 20/8/18	Date: 21/8/18	Date: 23/8/18
1	1701219010	CHANDAN GOUDA	Chandan Gouda	Chandan Gouda	Chandan Gouda	Chandan Gouda
2	1701219018	BHAGYASHREE SAMANTARAY	Bhagyasree Samantaray	Bhagyasree Samantaray	Bhagyasree Samantaray	Bhagyasree Samantaray
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5	1701219037	ABHIRAM DHAR	Abhiram Dhar	Abhiram Dhar	Abhiram Dhar	Abhiram Dhar
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18	1701219138	MANISH KUMAR	Manish Kumar	Manish Kumar	Manish Kumar	Manish Kumar
19	1701219139	RAJESH SWAIN	Rajesh Swain	Rajesh Swain	Rajesh Swain	Rajesh Swain

(Signature)

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23	1701219143	SOURAV KUMAR MANDAL	Sourav Kumar Mandal	Sourav Kumar Mandal	Sourav Kumar Mandal	Sourav Kumar Mandal
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25	1701219145	MEGHA	Megha	Megha	Megha	Megha
26	1701219177	JHADESWAR BADHAI	Jhadeswar Badhai	Jhadeswar Badhai	Jhadeswar Badhai	Jhadeswar Badhai
27	1701219284	BAPU PRADHAN	Bapu Pradhan	Bapu Pradhan	Bapu Pradhan	Bapu Pradhan
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31	1701219288	GAZALA PARWEEN	Gazala Parween	Gazala Parween	Gazala Parween	Gazala Parween
Signature of the Course Coordinator			S. Dey	S. Dey	S. Dey	S. Dey

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



Certificate of Completion

This is to certify that Mr./Ms. CHANDAN GOUDA, student of the Department

of Electronics and Telecommunications Engg semester Third bearing registration number 1701219010

has successfully completed the ADD-ON Course titled PCB Design

conducted at College of Engineering Bhubaneswar in the academic year 2018-19



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TRUE COPY



Course-Coordinator



Principal



COLLEGE OF ENGINEERING BHUBANESWAR
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Certificate of Completion

This is to certify that Mr./Ms. BHAGYASHREE SAMANTARAY, student of the Department

of Electronics and Telecommunications Engg semester Third bearing registration number 1701219018

has successfully completed the ADD-ON Course titled PCB Design

conducted at College of Engineering Bhubaneswar in the academic year 2018-19

TRUE COPY

Course-Coordinator

Principal

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Certificate of Completion

This is to certify that Mr./Ms. BOSEN BIRUA student of the Department

of Electronics and Telecommunications Engg semester Third bearing registration number 1701219034

has successfully completed the ADD-ON Course titled PCB Design

conducted at College of Engineering Bhubaneswar in the academic year 2018-19

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Course-Coordinator

Principal

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Certificate of Completion

This is to certify that Mr./Ms. ABHIRAM DHAR student of the Department

of Electronics and Telecommunications Engg. semester Third bearing registration number 1701219037

has successfully completed the ADD-ON Course titled PCB Design

conducted at College of Engineering Bhubaneswar in the academic year 2018-19

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Course-Coordinator

Principal

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



Certificate of Completion

This is to certify that Mr./Ms. ASHIS KUMAR SHAW, student of the Department

of Electronics and Telecommunications Engg semester Third bearing registration number 1701219056

has successfully completed the ADD-ON Course titled PCB Design

conducted at College of Engineering Bhubaneswar in the academic year 2018-19

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Course-Coordinator

Principal

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