



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 : Machine Learning Algorithms for Communication

[Programme: B.Tech, ETC]

Course Objectives:

To impart knowledge to student about recent trends in telecommunication. It provides a brief introduction to the new solutions for communication engineering using machine learning techniques.

SYLLABUS

Total Lecture Hours : 30

MODULE-I:

[10 Hours]

Overview of machine-learning algorithms , their application in wireless communication, supervised learning, unsupervised learning and reinforcement learning (RL), machine learning in wireless channel modeling, (i) propagation scenario classification, (ii) machine-learning-based multipath component (MPC) clustering, (iii) automatic MPC tracking and (iv) deep-learning-based channel modeling.

MODULE-II

[10 Hours]

New types of channel estimators based on machine learning, pilot-aided channel estimators, channel estimators based on deep learning and one blind estimator , challenges and open problems for channel estimation aided by machine-learning theories

MODULE-III

[10 Hours]

Deep learning is incorporated for indoor localization based on channel state information (CSI) with commodity 5GHz Wi-Fi, deep-learning-based algorithm is to leverage bimodal CSI data, the open Jackson queuing network models, vehicular distribution, Model validation, effective in the analysis of system-level performance and dimensioning for vehicular networks.

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

- CO1: Explain the basic principles of machine learning and artificial intelligence.
- CO2: Explain the different algorithms involved in machine learning
- CO3: use the algorithms for application in communication engineering.
- CO4: use deep learning technique for application in communication engineering.

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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:

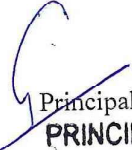
1. Machine Learning And Wireless Communications by Ruisi He, ZIghuo Ding.
2. Machine Learning, Deep Learning and Computational Intelligence for Wireless Communication by E S Gopi
3. machine learning and deep learning techniques in wireless and mob by K. Suganthi, R. Karthik, G. Rajesh, Peter Ho Chiung Ching
4. 5G Wireless Communication System Using Machine Learning by Dr. S. K. Agrawal

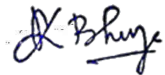
Other Sources:

e-Learning Resources:

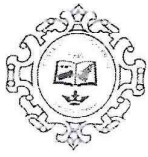
1. https://www.youtube.com/watch?v=r4sgKrRL2Ys&list=PL1xHD4vteKYVpaliy295pg6_SY5qznc77

Design and Developed by: Prof. Subrat Kumar Mohanty and Prof. Arpit Sourav Mohapatra


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



DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

COLLEGE OF ENGINEERING BHUBANESWAR

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NOTICE

ADD-ON/CERTIFICATE COURSE

Ref No: COEB/ETC/2020/11

Date: 05/09/2020

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 in ON LINE Mode as per the time table given below.. The registration process for the course will start from **05/09/2020**. 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	14/09/2020
5th	Advances and challenges in telecommunication	Prof. Subrat Kumar Mohanty	14/09/2020
7th	Machine Learning Algorithms for Communication	Prof. Debarchana Jena	14/09/2020

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


Head of the Department
H.O.D.
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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COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
ADD-ON COURSE ENROLLMENT SHEET

ON-LINE MODE

Name of the Department: Electronics and telecommunication engineering	
Course Title: Machine Learning Algorithms for Communication	
Semester : 7th	Academic Year: 2020-21
Duration: 30 hours	

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, concerning 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.	Registration No.	Name of the Student	Remarks by the Course Coordinator
1	1701219010	CHANDAN GOUDA	Certified that the Enrollment Sheet is prepared by taking the consents of the students to enroll themselves in this Certificate Course (Add-On) to be conducted in Virtual Mode (ON-LINE) during the Pandemic COVID'19 through the link provided by the Department. They have also gone through the declaration/undertaking to be strictly abided by them during the course period.
2	1701219018	BHAGYASHREE SAMANTARAY	
3	1701219034	BOSEN BIRUA	
4	1701219036	BISHAL JHARIAT	
5	1701219037	ABHIRAM DHAR	
6	1701219056	ASHIS KUMAR SHAW	
7	1701219062	ABHISEK KANUNGO	
8	1701219069	ABHISHEK MISHRA	
9	1701219076	RANJIT MOHANTY	
10	1701219089	SONALI RAJAK	
11	1701219090	DAYASAGAR MANGAL	
12	1701219132	SOUMYA RANJAN MISHRA	
13	1701219133	ABHISHEK KUMAR GUPTA	
14	1701219134	AKASHDIP NAYAK	
15	1701219135	ANKITA DAS	
16	1701219136	BIRENDRA KUMAR	
17	1701219137	DIBYADARSHINI MAHARATHA	
18	1701219138	MANISH KUMAR	
19	1701219139	RAJESH SWAIN	
20	1701219140	RATI	
21	1701219141	SHIWANI JHA	
22	1701219142	SOURAV CHOUDHARY	
23	1701219143	SOURAV KUMAR MANDAL	
24	1701219144	TARAPRASAD SAHOO	
25	1701219145	MEGHA	
26	1701219177	JHADESWAR BADHAI	
27	1701219284	BAPU PRADHAN	
28	1701219285	LOPAMUDRA PANI	
29	1701219286	MIKINA JENA	
30	1701219287	DURGA MOHANTY NIVEDITA	
31	1701219288	GAZALA PARWEEN	



Course Coordinator
(Signature with Seal)

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
 ADD ON/CERTIFICATE COURSE


STUDENT ATTENDANCE


ON-LINE MODE

Programme: B.Tech in Electronics and telecommunication engineering
 Name of the Course: Machine Learning Algorithms for Communication

Semester: 7th Academic Year: 2020-21

SL. NO.	Reg. No./ Enrollment	NAME OF THE STUDENT	Remarks by the Course Coordinator (P-Present, A-Absent)														Remarks		
			Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date			
1	1701219010	CHANDAN GOUDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Certified that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.
2	1701219018	BHAGYASHREE SAMANTARAY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
3	1701219034	BOSEN BIJUA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
4	1701219036	BISHAL JHARIAT	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
5	1701219037	ABHIRAM DHAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
6	1701219056	ASHIS KUMAR SHAW	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
7	1701219062	ABHISEK KANUNGO	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
8	1701219069	ABHISEK MISHRA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
9	1701219076	RANJIT MOHANTY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
10	1701219089	SONALI RAJAK	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
11	1701219090	DAYASAGAR MANGAL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
12	1701219132	SOUMYA RANJAN MISHRA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
13	1701219133	ABHISEK KUMAR GUPTA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
14	1701219134	AKASHDIP NAYAK	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
15	1701219135	ANKITA DAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
16	1701219136	BIRENDRA KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
17	1701219137	DIBYADARSHINI MAHARATHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
18	1701219138	MANISH KUMAR	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
19	1701219139	RAJESH SWAIN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
20	1701219140	RATI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
21	1701219141	SHIWANI JHA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	


 Course Coordinator
 (Signature with Seal)


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COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
 ADD ON/ CERTIFICATE COURSE



STUDENT ATTENDANCE SHEET

Programme: B.Tech in Electronics and telecommunication engineering
 Name of the Course: Machine Learning Algorithms for Communication

Semester: 7th
 Academic Year: 2020-21

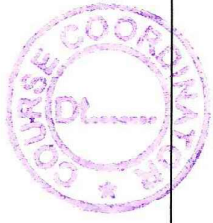
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Remarks by the Course Coordinator (P-Present, A-Absent)							Remarks
			Date	Date	Date	Date	Date	Date	Date	
1	1701219010	CHANDAN GOUDA	29/9/20	30/9/20	5/10/20	6/10/20	7/10/20	P	Certified that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present; and A-Absent for the students.  A. Jena Course Coordinator (Signature with Seal)	
2	1701219018	BHAGYASHREE SAMANTARAY	P	P	P	P	P			
3	1701219034	BOSEN BIRUA	P	P	P	P	P			
4	1701219036	BISHAL JHARIAT	P	P	P	P	P			
5	1701219037	ABHIRAM DHAR	P	P	A	P	P			
6	1701219056	ASHIS KUMAR SHAW	P	P	P	P	P			
7	1701219062	ABHISEK KANUNGO	P	P	P	P	P			
8	1701219069	ABHISHEK MISHRA	P	P	P	P	P			
9	1701219076	RANJIT MOHANTY	P	P	P	P	P			
10	1701219089	SONALI RAJAK	P	P	P	P	P			
11	1701219090	DAYASAGAR MANGAL	P	P	P	P	P			
12	1701219132	SCUMYA RANJAN MISHRA	P	P	P	P	P			
13	1701219133	ABHISHEK KUMAR GUPTA	P	P	P	P	P			
14	1701219134	AKASHDIP NAYAK	P	P	A	P	P			
15	1701219135	ANKITA DAS	P	P	A	P	P			
16	1701219136	BIRENDRA KUMAR	P	P	P	P	P			
17	1701219137	DIBYADARSHINI MAHARATHA	P	P	P	P	P			
18	1701219138	MANISH KUMAR	P	P	P	P	P			
19	1701219139	RAJESH SWAIN	P	P	P	P	P			
20	1701219140	RATI	P	P	P	P	P			
21	1701219141	SHIWANI JHA	P	P	P	P	P			
22	1701219142	SCURAV CHOUDHARY	P	P	P	P	P			
23	1701219143	SCURAV KUMAR MANDAL	P	P	A	P	P			

Duration : 30 hours

A. Jena

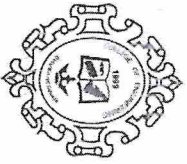
24	1701219144	TARAPRASAD SAHOO	P	P	P	P	P	P	P
25	1701219145	MEGHA	P	P	P	P	P	P	P
26	1701219177	JHADESWAR BADHAI	P	P	P	P	P	P	P
27	1701219284	BAPU PRADHAN	P	P	P	P	P	P	P
28	1701219285	LOPAMUDRA PANI	P	P	P	P	P	P	P
29	1701219286	MIKINA JENA	P	P	P	P	P	P	P
30	1701219287	DURGA MOHANTY NIVEDITA	P	P	P	P	P	P	P
31	1701219288	GAZALA PARWEEN	P	A	P	P	A	P	P
		Signature of the Course Coordinator	D. Jena	D. Jena	D. Jena	D. Jena	D. Jena	D. Jena	D. Jena

Certific that this Certificate course is conducted in virtual mode (ON-LINE) because of the Pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.



D. Jena

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Certificate of Completion

This is to certify that Mr./Ms. JHADESWAR BADHAI, student of the Department

of Electronics & Telecommunication Engg. semester Seventh bearing registration number 1701219177

has successfully completed the ADD-ON Course titled Machine Learning Algorithms for Communication

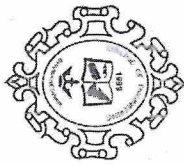
conducted at College of Engineering Bhubaneswar in the academic year 2020-21

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Course-Cordinator

Principal

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College of Engineering Bhubaneswar



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



Certificate of Completion

This is to certify that Mr./Ms. BAPU PRADHAN, student of the Department

of Electronics & Telecommunication Engg. semester Seventh bearing registration number 1701219284

has successfully completed the ADD-ON Course titled Machine Learning Algorithms for Communication

conducted at College of Engineering Bhubaneswar in the academic year 2020-21



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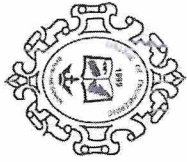
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Course Coordinator



Principal



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Certificate of Completion

This is to certify that Mr./Ms. LOPAMUDRA PANI student of the Department

of Electronics & Telecommunication Engg. semester Seventh bearing registration number 1701219285

has successfully completed the ADD-ON Course titled Machine Learning Algorithms for Communication

conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

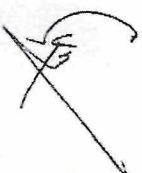


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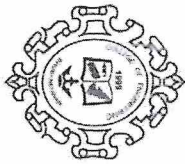
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Course-Coordinator



Principal



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Certificate of Completion


This is to certify that Mr./Ms. MIKINA JENA, student of the Department


of Electronics & Telecommunication Engg. semester Seventh bearing registration number 1701219286


has successfully completed the ADD-ON Course titled Machine Learning Algorithms for Communication

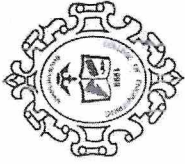
conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

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Course-Coordinator


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Certificate of Completion

This is to certify that Mr./Ms. DURGA MOHANTY NIVEDITA student of the Department

of Electronics & Telecommunication Engg. semester Seventh bearing registration number 1701219287

has successfully completed the ADD-ON Course titled Machine Learning Algorithms for Communication

conducted at College of Engineering Bhubaneswar in the academic year 2020-21




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