



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 : Animal sound processing

[Programme: B.Tech, ETC]

Course Objectives:

To expose the students the fundamental concepts and history of bioacoustic recording and equipment; To impart knowledge to student about software algorithms for automated detection and classification of animal sounds.

SYLLABUS

Total Lecture Hours : 30

MODULE-I:

[10 Hours]

Introduction, recorders, microphones, advances in sound analysis, basic concepts of sound recording, calibration, other gear., Collecting data, ethical research, playback method and control, digital file format, data storage, studies on captive animals

MODULE-II

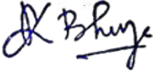
[10 Hours]

Acoustic signal processing, localization and tracking, sound propagation, source path receiver model, classification and detection of animal sound, Noise effects on terrestrial vertebrates, noise effects on fish, noise effects on reptiles, noise effects on mammals

MODULE-III

[10 Hours]

Sound Propagation in Terrestrial Environments , The Source-Path-Receiver Model for Animal Acoustic Communication , The Sonar Equation , The Layered Ocean , Propagation Loss , Practical Acoustic Modeling Examples , Software for Analyses


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

- CO1: Explain the basic principles of bioacoustics.
- CO2: Explain the different statistical method for analyzing bioacoustics data.
- CO3: Able to explain the effects of noise on animals

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:

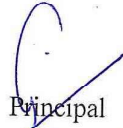
1. Exploring Animal Behavior Through Sound: Volume 1
2. Speech and Audio Signal Processing by Jayan A.R

Other Sources:


e-Learning Resources:

1. <https://www.elephantvoices.org/>
2. <https://www.youtube.com/watch?v=WJI-17MNpdE>

Design and Developed by: Prof. Debarchana Jena and Prof. Subrat Kumar Mohanty


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



**DEPARTMENT OF ELECTRONICS & TELECOMMUNICATIONS ENGINEERING
COLLEGE OF ENGINEERING BHUBANESWAR**

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

[AFFILIATED TO BPUT, ODISHA]

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NOTICE

ADD-ON/CERTIFICATE COURSE


Ref No: COEB/ETC/2022/12

Date: 01/10/2022

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 **10/10/2022**. 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
3 rd	Design and Analysis of Oscillator Circuits	Prof. Arpit Sourav Mohapatra	17/10/2022
5 th	ECG signal processing using Raspberry Pi	Prof. Debarchana Jena	17/10/2022
7 th	Animal sound processing	Prof. Anwasha Halder	17/10/2022

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

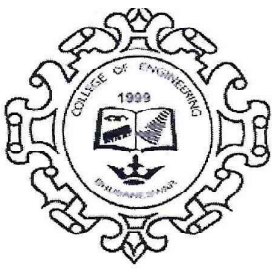

Head of the Department
Dept. of ETC Engg.
COEB, Bhubaneswar

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

STUDENT ENROLLMENT SHEET

Name of the Department: Electronics and Telecommunication Engineering	
Course Title: Animal sound processing	
Semester: 7th	Academic Year: 2022-23

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	1901219124	ANAND KANHAR	Anand Kanhar
2	1901219125	APOORBA KUMAR JENA	Apoorba Kumar Jena
3	1901219126	BARISA SOREN	Barisha Soren
4	1901219127	BHUPEN PRABASH SURJULIA	B.P. Sircisulla
5	1901219128	CHANDAN KUMAR PANIGRAHI	Chandan Kumar Panigrahi
6	1901219129	INDRABATI MINZ	Indrabati Minz
7	1901219130	JAGANNATH SANTA	Jagannath Santa
8	1901219131	MANSI MAYURI	Mansi Mayuri
9	1901219132	OMPRAKASH ROUT	Ompakash Rout
10	1901219133	PRIYABRATA ROUT	Priyabrata Rout
11	1901219134	RAKESH KUMAR JENA	Rakesh Kumar Jena
12	1901219135	ROSHAN KUMAR KAR	Roshan Kumar Kar
13	1901219136	SAHEL SUMAN PATTANAYAK	Sahel Suman Pattanayak
14	1901219137	SANGRAM NAYAK	Sangram Nayak
15	1901219138	SHREEBATS PONDU	Shreebats Pondu
16	1901219139	SISIR KUMAR DALAI	Sisir Kumar Dalai
17	1901219140	SOUBHAGYA KUND	Soubhagya Kund
18	1901219141	SOURAV RANJAN SAHOO	Sourav Sahoo
19	1901219142	SRIKUMAR BIBEKANANDA DAS	Sri Kumar B. Das
20	1901219143	KARAN JENA	Karan Jena
21	1901219144	SURAKSHYA SWAIN	Surakshya Swain
22	1901219254	ABHISHEK DASH	Abhishek Dash
23	1901219255	AYESHA SWAIN	Ayesha Swain
24	1901219256	MILAN RAY	Milan Ray
25	1901219257	PRASIT KUMAR SATAPATHY	P. K. Satpathy
26	1901219258	PREETISUDHA MOHANTY	Preetisudha Mohanty
27	1901219259	SUBHAM PRADHAN	Subham Pradhan
28	1901219260	SUBHRANSU RANJAN BISWAL	Subhransu Ranjan Biswal
29	1901219261	SUKRITI PRADHAN	Sukruti Pradhan


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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
 ADD ON / CERTIFICATE COURSE

Sheet No. _____

STUDENT ATTENDANCE SHEET

Programme: B.Tech in Electronics and Telecommunications
Name of the Course: Animal sound processing

Semester: 7th
Course Code (if any):

Academic Year: 2022-23

NAME OF THE STUDENT		Date & Signature of the Student		
SL. NO.	Reg. No./ Enrollment No.	Date:	Date:	Date:
		17/10/2022	18/10/2022	19/10/2022
1	1901219124 ANAND KANHAR	Anand Kanhar	Anand Kanhar	Anand Kanhar
2	1901219125 APOORBA KUMAR JENA	Apoorba Kumar Jena	Apoorba Kumar Jena	Apoorba Kumar Jena
3	1901219126 BARISA SOREN	Barisha Soren	Barisha Soren	Barisha Soren
4	1901219127 BHUPEN PRABASH SURJULIA	B.P. Surjulia	B.P. Surjulia	B.P. Surjulia
5	1901219128 CHANDAN KUMAR PANIGRAHI	Chandan K. Panigrahi	Chandan K. Panigrahi	Chandan K. Panigrahi
6	1901219129 INDRABATI MINZ	Indrabati Minz	Indrabati Minz	Indrabati Minz
7	1901219130 JAGANNATH SANTA	Jagannath Santa	Jagannath Santa	Jagannath Santa
8	1901219131 MANSI MAYURI	Mansi Mayuri	Mansi Mayuri	Mansi Mayuri
9	1901219132 OMPRAKASH ROJT	Omparakash Rojt	Omparakash Rojt	Omparakash Rojt
10	1901219133 PRIYABRATA ROUJ	Priyabrata Rouj	Priyabrata Rouj	Priyabrata Rouj
11	1901219134 RAKESH KUMAR JENA	Rakesh Kumar Jena	Rakesh Kumar Jena	Rakesh Kumar Jena
12	1901219135 ROSHAN KUMAR KAR	Roshan Kumar Kar	Roshan Kumar Kar	Roshan Kumar Kar
	1901219136 SAHEL SUMAN PATTANAYAK	S.S. Pattanayak	S.S. Pattanayak	S.S. Pattanayak
	1901219137 SANGRAM NAYAK	Sangram Nayak	Sangram Nayak	Sangram Nayak
	1901219138 SHREEBATSA PONDU	S.P. Pondur	S.P. Pondur	S.P. Pondur
16	1901219139 SISIR KUMAR DALAI	Sisir Kumar Dalai	Sisir Kumar Dalai	Sisir Kumar Dalai
17	1901219140 SOUBHAGYA KUND	Soubhagya Kund	Soubhagya Kund	Soubhagya Kund
18	1901219141 SOURAV RANJAN SAHOO	Sourav Ranjan Sahoo	Sourav Ranjan Sahoo	Sourav Ranjan Sahoo
19	1901219142 SRIKUMAR BIBEKANANDA DAS	Srikumar B. Das	Srikumar B. Das	Srikumar B. Das
20	1901219143 KARAN JENA	Karan Jena	Karan Jena	Karan Jena
21	1901219144 SURAKSHYA SWAIN	Surakshya Swain	Surakshya Swain	Surakshya Swain
22	1901219254 ABHISHEK DASH	Abhishek Dash	Abhishek Dash	Abhishek Dash
23	1901219255 AYESHA SWAIN	Ayesha Swain	Ayesha Swain	Ayesha Swain
24	1901219256 MILAN RAY	Milan Ray	Milan Ray	Milan Ray
25	1901219257 PRASIT KUMAR SATAPATHY	P.K. Satapathy	P.K. Satapathy	P.K. Satapathy
26	1901219258 PREETISUDHA MOHANTY	Preetisudha Mohanty	Preetisudha Mohanty	Preetisudha Mohanty
27	1901219259 SUBHAM PRADHAN	Subham Pradhan	Subham Pradhan	Subham Pradhan
28	1901219260 SUBHRANSU RANJAN BISWAL	Subhransu R. Biswal	Subhransu R. Biswal	Subhransu R. Biswal
29	1901219261 SUKRITI PRADHAN	Sukriti Pradhan	Sukriti Pradhan	Sukriti Pradhan
Signature of the Course Coordinator		Anvesha Halder	Anvesha Halder	Anvesha Halder

A. B. Singh

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

STUDENT ATTENDANCE SHEET

Sheet No. _____

Programme: B.Tech in Electronics and Telecommunications
Name of the Course: Animal sound processing

Semester: 7th
Course Code (if any):

Academic Year: 2022-23

SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date:	Date:	Date:	Date & Signature of the Student
1	1901219124	ANAND KANHAR	21/10/2022	26/10/2022	27/10/2022	28/10/2022
2	1901219125	APOORBA KUMAR JENA	Anand Kanhar	Anand Kanhar	Anand Kanhar	Anand Kanhar
3	1901219126	BARISA SOREN	Apoorba Kumar Jena	Apoorba Kumar Jena	Apoorba Kumar Jena	Apoorba Kumar Jena
4	1901219127	BHUPEN PRABASH SURJULIA	Barisha Soren	Barisha Soren	Barisha Soren	Barisha Soren
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7	1901219130	JAGANNATH SANTA	Indrabati Minz	Indrabati Minz	Indrabati Minz	Indrabati Minz
8	1901219131	MANSI MAYURI	Jagannath Santa	Jagannath Santa	Jagannath Santa	Jagannath Santa
9	1901219132	OMPRAKASH ROUJ	Mani Mayuri	Mani Mayuri	Mani Mayuri	Mani Mayuri
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13	1901219136	SAHEL SUMAN PATTANAYAK	Roshan Kumar Kar	Roshan Kumar Kar	Roshan Kumar Kar	Roshan Kumar Kar
14	1901219137	SANGRAM NAYAK	S.S. Pattanayak	S.S. Pattanayak	S.S. Pattanayak	S.S. Pattanayak
15	1901219138	SHREEBATSA PONDU	Sangram Nayak	Sangram Nayak	Sangram Nayak	Sangram Nayak
16	1901219139	SISIR KUMAR DALAI	S. Pondu	S. Pondu	S. Pondu	S. Pondu
17	1901219140	SOUBHAGYA KUNID	Sixta Komari Dalai	Sixta Komari Dalai	Sixta Komari Dalai	Sixta Komari Dalai
18	1901219141	SOURAV RANJAN SAHOO	Soubhagya Kund	Soubhagya Kund	Soubhagya Kund	Soubhagya Kund
19	1901219142	SRIKUMAR BIBEKANANDA DAS	Sourav Ranjan Sahoo	Sourav Ranjan Sahoo	Sourav Ranjan Sahoo	Sourav Ranjan Sahoo
20	1901219143	KARAN JENA	Stikumar B. Das	Stikumar B. Das	Stikumar B. Das	Stikumar B. Das
21	1901219144	SURAKSHYA SWAIN	Karan Jena	Karan Jena	Karan Jena	Karan Jena
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23	1901219255	AYESHA SWAIN	Abhishek Dash	Abhishek Dash	Abhishek Dash	Abhishek Dash
24	1901219256	MILAN RAY	Ayesha Swain	Ayesha Swain	Ayesha Swain	Ayesha Swain
25	1901219257	PRASIT KUMAR SATAPATHY	Milan Ray	Milan Ray	Milan Ray	Milan Ray
26	1901219258	PREETISUDHA MOHANTY	P.K. Satapathy	P.K. Satapathy	P.K. Satapathy	P.K. Satapathy
27	1901219259	SUBHAM PRADHAN	Preeti Sudha Mohanty	Preeti Sudha Mohanty	Preeti Sudha Mohanty	Preeti Sudha Mohanty
28	1901219260	SUBHRANJU RANJAN BISWAL	Subham Pradhan	Subham Pradhan	Subham Pradhan	Subham Pradhan
29	1901219261	SUKRITI PRADHAN	Subhramnu Ranjan Biswal	Subhramnu Ranjan Biswal	Subhramnu Ranjan Biswal	Subhramnu Ranjan Biswal
		Signature of the Course Coordinator	Sukriti Pradhan	Sukriti Pradhan	Sukriti Pradhan	Sukriti Pradhan

(Signature)

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

Sheet No. _____

Programme: B.Tech in Electronics and Telecommunications
Name of the Course: Animal sound processing

Semester: 7th
Course Code (if any):

Academic Year: 2022-23

SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date:	Date:	Date:	Date & Signature of the Student
			3/1/2022	1/1/2022	2/1/2022	3/1/2022
1	1901219124	ANAND KANHAR	Anand Kanhar	Anand Kanhar	Anand Kanhar	Anand Kanhar
2	1901219125	APOORBA KUMAR JENA	Apoorba Kumar Jena	Apoorba Kumar Jena	Apoorba Kumar Jena	Apoorba Kumar Jena
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18	1901219141	SOURAV RANJAN SAHOO	Sourav Sahoo	Sourav Sahoo	Sourav Sahoo	Sourav Sahoo
19	1901219142	SRIKUMAR BIBEKANANDA DAS	Srikumar B. Das	Srikumar B. Das	Srikumar B. Das	Srikumar B. Das
20	1901219143	KARAN JENA	Karan Jena	Karan Jena	Karan Jena	Karan Jena
21	1901219144	SURAKSHYA SWAIN	Surakshya Swain	Surakshya Swain	Surakshya Swain	Surakshya Swain
22	1901219254	ABHISHEK DASH	Abhishek Dash	Abhishek Dash	Abhishek Dash	Abhishek Dash
23	1901219255	AYESHA SWAIN	Ayesha Swain	Ayesha Swain	Ayesha Swain	Ayesha Swain
24	1901219256	MILAN RAY	Milan Ray	Milan Ray	Milan Ray	Milan Ray
25	1901219257	PRASIT KUMAR SATAPATHY	P.K. Satapathy	P.K. Satapathy	P.K. Satapathy	P.K. Satapathy
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28	1901219260	SUBHRANSU RANJAN BISWAL	Subhansu Ranjan Biswal	Subhansu Ranjan Biswal	Subhansu Ranjan Biswal	Subhansu Ranjan Biswal
29	1901219261	SUKRITI PRADHAN	Sukriti Pradhan	Sukriti Pradhan	Sukriti Pradhan	Sukriti Pradhan
		Signature of the Course Coordinator				

(Signature)

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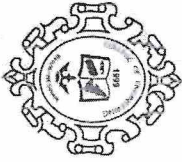
COLLEGE OF ENGINEERING BHUBANESWAR (COEB)
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING
 ADD ON / CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

Programme: B.Tech in Electronics and Telecommunications **Semester:** 7th **Academic Year:** 2022-23
Name of the Course: Animal sound processing **Course Code (if any):**

Duration : 30 hours		Date & Signature of the Student	
SL. NO.	Reg. No./ Enrollment No.	NAME OF THE STUDENT	Date:
1	1901219124	ANAND KANHAR	10/11/2022
2	1901219125	APOORBA KUMAR JENA	9/11/2022
3	1901219126	BARISA SOREN	Anand Kanhar
4	1901219127	BHUPEN PRABASH SURJULIA	Apoorba Kumar Jena
5	1901219128	CHANDAN KUMAR PANIGRAHI	Barisa Soren
6	1901219129	INDRABATI MINZ	B.P. Susijulia
7	1901219130	JAGANNATH SANTA	Chandan K. Panigrahy
8	1901219131	MANSI MAYURI	Indrabati Minz
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17	1901219140	SOUBHAGYA KUND	S. Pondu
18	1901219141	SOURAV RANJAN SAHOO	Shikhaman B. Das
19	1901219142	SRIKUMAR BIBEKANANDA DAS	Soubhagya Kund
20	1901219143	KARAN JENA	Sourav Sahoo
21	1901219144	SURAKSHYA SWAIN	Srikumar B. Das
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25	1901219257	PRASIT KUMAR SATAPATHY	Ayesha Swain
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27	1901219259	SUBHAM PRADHAN	P.K. Satapathy
28	1901219260	SUBHRANSU RANJAN BISWAL	Preetisudha Mohanty
29	1901219261	SUKRITI PRADHAN	Subham Pradhan
		Signature of the Course Coordinator	Subhansu R. Biswal
			Sukriti Pradhan
			Anvesha Beldar

A. B. Singh

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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. APOORBA KUMAR JENA, student of the Department
of Electronics and Telecommunication semester Seventh bearing registration number 1901219125
has successfully completed the ADD-ON Course titled Animal sound processing
conducted at College of Engineering Bhubaneswar in the academic year 2022-23

TRUE COPY


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. BARISA SOREN, student of the Department

of Electronics and Telecommunication semester Seventh bearing registration number 1901219126

has successfully completed the ADD-ON Course titled Animal sound processing

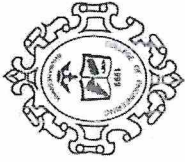
conducted at College of Engineering Bhubaneswar in the academic year 2022-23.

TRUE COPY

Course-Coordinator

Principal

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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. BHUPEN PRABASH SURJULA, student of the Department

of Electronics and Telecommunication semester Seventh bearing registration number 1901219127

has successfully completed the ADD-ON Course titled Animal sound processing

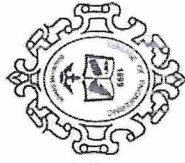
conducted at College of Engineering Bhubaneswar in the academic year 2022-23

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Course-Coordinator

Principal

PRINCIPAL
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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. INDRABATI MINZ, student of the Department

of Electronics and Telecommunication semester Seventh bearing registration number 1901219129

has successfully completed the ADD-ON Course titled Animal sound processing

conducted at College of Engineering Bhubaneswar in the academic year 2022-23

TRUE COPY

Course-Coordinator

Principal

PRINCIPAL
College of Engineering Bhubaneswar