



**MATRUSRI ENGINEERING COLLEGE**

#16-1-486, Saidabad, Hyderabad-500059

(Approved by AICTE, Affiliated to Osmania University)



**REPORT ON**  
**2023 IEEE SPS Seasonal School on**  
**“Advanced Signal Processing using Machine Learning Techniques”**  
**July-2023**

1. Title: 2023 IEEE SPS Seasonal School on “Advanced Signal Processing using Machine Learning Techniques”

2. Program type: Seasonal School

3. Date: 10.07.2023 to 15.07.2023

4. No. of students Participated: 45

5. No. of Faculty Participated: 30

6. No. of External Participants: 29

7. Objectives:

- The main objective of the Seasonal school is to provide a platform to create awareness on recent developments in Signal Processing and its applications to the latest technological developments.
- To allow the participants a wide scope of opportunities in research and career, a well curated course covering the recent advances and latest techniques, novel and innovative applications are also included in the lectures' agenda.
- Foster membership development among young researchers with interests in signal processing and its applications.

8. Benefits in terms of Learning/skill/Knowledge obtained:

Participants got the information about the various branches of signal processing using Machine Learning Techniques. They have got an opportunity to work on Python/Tensor Flow.

9. Faculty Coordinators: Dr. I. Sharath Chandra, Associate Professor, ECE, MECS

Mr.K.Manohar, Assistant Professor, ECE, MECS

# 10. Poster/Banner:



## MATRUSRI ENGINEERING COLLEGE




### IEEE SPS SEASONAL SCHOOL

### July ,2023

### Advanced Signal Processing Using Machine Learning Techniques

**Chief Patrons:**

**Dr K P Srinivas Rao**  
Chairman, MES

**Sri M Krishna Kumar**  
Secretary, MES

**Sri J Sudhakar**  
Treasurer, MES

**Patron:**

**Dr D Hanumantha Rao**  
Principal, MECS

**Head of the Department:**

**Dr N Srinivasa Rao**

**Coordinators:**

**Dr I Sharath Chandra**  
Associate Professor, ECE

**Mr K Manohar**  
Assistant Professor, ECE

**Dates:**

**10-07-2023 to**  
**15-07-2023**

**Venue:**

**Matrusri Engineering  
College, Hyderabad**

**About IEEE Signal Processing Society (SPS)**  
Signal processing is the enabling technology for the generation, transformation, extraction, and interpretation of information. It comprises the theory, algorithms with associated architectures and implementations and applications related to processing information contained in many different formats broadly designated as signals. The Signal Processing Society is an international organization whose purpose is to: advance and disseminate state-of-the-art scientific information and resources; educate the signal processing community; and provide a venue for people to interact and exchange ideas.

**About the College**  
Matrusri Engineering College, Saidabad, Hyderabad, Telangana, was established by Matrusri Education Society in 2011 aiming at becoming a pioneer in Technical Education in the private sector. The college offers courses in Civil Engineering, Computer Science and Engineering, Computer Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, Information Technology and Mechanical Engineering. The UG programs in engineering have been accredited by NBA and NAAC A+ grade. It is an ISO 9001:2015 certified Institution. The college runs with a team of highly qualified and experienced faculty members and state of the art equipment in all departments.

**About the Program**  
The main objective of the Seasonal school is to provide a platform to create awareness on advanced developments in Signal Processing and its applications to the latest technological developments. The school offers lectures, simulation studies and interactive sessions that provide knowledge and give participants the chance to exchange about their own ideas.

**Resource Persons**  
**From IITs/IIITs/NITs/Organisations of High Repute.**

**Target audience**  
SPS members, Academic faculty, Persons from Industry, Research scholars, PG/UG students who have a strong focus on Signal processing.

**NOTE:**

- Accommodation will be provided for outstation participants on twin sharing basis.
- Best participants will be awarded based on assessment.

**Topics to be covered:**

- ❖Mathematical Foundations of ML,
- ❖Feature Extraction and Dimensionality
- ❖Reduction Techniques in ML
- ❖EEG Signal Processing
- ❖BCI System and its applications
- ❖AI/ML for Biomedical Signal Processing
- ❖Affective Computing using Speech
- ❖Speech Emotion Recognition using ML
- ❖Basics of Tensorflow/ Keras/ Scikit Learn
- ❖Hands on Session using Matlab/Python

**Registration fee:**

**Industry Participants: 1500**

**Faculty Members(Non-IEEE): 1000**

**Faculty Members(IEEE): 750**

**Research Scholars: 700**

**Student Members(Non IEEE): 600**

**IEEE Student Members: 500**



**Registration Link:**  
<https://forms.gle/48dnpLJwqAvZm7gg7>

**For More Info:**  
**Mobile:9010858595/9885391926**  
**E-mail: [ieeemecssps2023@gmail.com](mailto:ieeemecssps2023@gmail.com)**



## 11. Photographs:



Chief Guest Dr.M.S.Y.Prasad,Project Director, RCI and the Guest of Honours, Dr.P.Lakshmi Narayana , Chair, IEEE SPS Hyderabad Section ,Dr.D.Rama Krishna, HoD-ECE, OU College of engineering ,Dr.D.Hanumantha Rao, Principal, MECS during the Inauguration of the program



Dr.N.Srinivas Rao, HoD-ECE and Dr.I.Sharath Chandra, Coordinator of Seasonal School felicitating the resource person, Dr.K.Anitha Sheela, Professor of ECE, JNTU Hyderabad during one of the sessions.



Resource Person, Dr.V.Anil Kumar, Professor, IIIT Hyderabad delivering the lecture



Dr.M.Sushanth Babu, Professor, ECE, Dr.I.Sharath Chandra and Mr. K.Manoahr Coordinators of the Seasonal School felicitating Prof.Barathram Ramkumar, Professor IIT Bhubaneswar.





Participants during the Lectures

## 12.Consolidated Brief Report:

The IEEE MECS Student Branch (STB1) SPS chapter has organised a seasonal school “Advanced Signal Processing using Machine Learning Techniques” from 10<sup>th</sup> to 15<sup>th</sup> July, 2023. The inaugural ceremony of the program held on 10-07-2023 during the Forenoon session started with welcoming the guests namely

1. The Chief Guest – Dr.M.S.Y.Prasad,Project Director, RUDRAM II, RCI, DRDO.,
2. The Guest Of Honor-Dr P Lakshmi Narayana, Chair, IEEE SPS Hyderabad Section.
3. The Guest Of Honor-Dr D Rama Krishna, HoD-ECE, University College of Engineering, Osmania University.
4. The Guest Of Honor-Dr D HanumanthaRao, Principal, MatrusriEnigneering College.
5. Dr.N.SrinivasaRao , Head, ECE,MECS.
6. IEEE MECS SPS SB Advisor, Dr I Sharath Chandra, Assoc. Professor, ECE dept. on to the dais.

The function commenced with the Lighting up of the Lamp by the Chief Guest(s) and the other dignitaries on dais with a Prayer song.

At first, MECS ECE HoD, Dr N Srinivasa Rao welcomed the particiapants and congratulated the organisers for organising the event. He also disclosed the details of activities under the department of ECE and the long term goals of the IEEE SB SPS chapter in the campus.

Dr. D. HanumanthaRao, Principal of MECS , has appreciated the students and Branch Counselor, Advisor for their initiation and systematically organizing the event.He suggested the students to effectively utilize these kind of programs organised by IEEE student branch and encouraged all the students to actively participate in all other technical events.


Dr. I. Sharath Chandra, IEEE MECS SPS SB Advisor emphasized about the objectives of the seasonal school and advised the participants to effectively utilise the resources during the program.


Guest of Honour,Dr.P.Lakshmi narayana, Chair, IEEE SPS Hyderabad Section, has congratulated the entire team for maintaining the punctuality in starting the session and suggested the participants to effectively use this resources.


Guest of Honour, Dr.D.Ramakrishna,HoD-ECE, UCoE in his remarks , appreciated the MEC and IEEE SPS SB chapter for organising the event and congratulated all the participants for showing interest in participating a seven day Seasonal School.


Chief Guest, Dr.M.S.Y. Prasad, Project Director, RUDRAM-II, RCI has talked about adapting the change and effectively utilizing the opportunities for updating one's knowledge. He also wished that the program will be successful and it gives a good learning experience to all the participants.


The schedule of the lectures delivered by different resource person during the program:



**MATRUSRI ENGINEERING COLLEGE**  
**2023 IEEE SPS SEASONAL SCHOOL**  
**on**  
**Advanced Signal Processing Using Machine Learning Techniques**  
**July 10<sup>th</sup>-15<sup>th</sup>, 2023**  
**OUR SPEAKERS**


  
**Prof. Rajesh M. Hegde,**  
**IIT Dharwad**


  
**Dr. Sumeet Agarwal,**  
**IIT Delhi**


  
**Dr. BarathRam. Ram Kumar,**  
**IIT Bhubaneswar**

  
**Dr. Priyanka Kokil,**  
**IIITDM Kancheepuram**

  
**Dr. Anil Kumar Vuppala,**  
**IIIT Hyderabad**

  
**Dr. Chiranjeevi Yerram,**  
**IIIT Hyderabad**

  
**Dr. Noor Mohammad,**  
**IIITDM Kancheepuram**

  
**Dr. Rahul Raman,**  
**IIITDM Kancheepuram**

### **PROGRAM SCHEDULE**

Date/Time	10:00 AM to 11:30 AM	11:45 AM to 1:15 PM		1:15 PM to 2:15 PM	2:15 PM to 3:45 PM
10-07-2023	Registration/ Inaugural Session	Advanced Signal Processing Applications Dr. Rajesh M. Hegde IIT Dharwad		LUNCH BREAK	ML based Classification and Regression Dr.Sumeet Agarwal IIT Delhi
11-07-2023	Biosignal processing (Recent works in PPG and PCG) Dr. Barathram Ramkumar IIT Bhubaneswar	Speech Emotion Recognition Dr.Anil Kumar Vuppala IIIT Hyderabad			Speech Emotion Recognition Dr.Anil Kumar Vuppala IIIT Hyderabad
12-07-2023	Feature extraction and Dimensionality reduction techniques in Machine Learning Dr.Chiranjeevi Yarra IIIT Hyderabad				ML based applications in Signal Processing Dr.Chiranjeevi Yarra IIIT Hyderabad
13-07-2023	VLSI architectures for Digital Signal Processing Dr.Noor Mohammad IIIT Kanchipuram				Computer Vision applications with ML Dr. Rahul Raman IIIT Kanchipuram
14-07-2023	Hands-on Session using Python/Matlab on Basics of Tensorflow/Keras/Scikit Learn				Hands-on Session using Python/Matlab on ML algorithms of signal processing
15-07-2023	Mini project Implementation		Assessment/Quiz	Feedback and Valedictory Session	