



SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate, Tirupur 638056

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION - 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

SASURIE COLLEGE OF ENGINEERING



1.2 Academic Flexibility(30)

1.2.1 Number of Value Added/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Value Added/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

| | | | | | |
|------------------------------|--|------------------|--|------------------------------------|-----------------|
| VAC Title: | Machine Learning for Signal Processing | | | | |
| Resource Person: | Mr.Ragul, CEO, Ragul Electronics, Chennai-600002 | | Ragul, Trainer, Ragul Electronics, Chennai-600002 | | |
| Date of conduct from: | 26.04.2021 | To: | 30.04.2021 | Duration: | 30 Hours |
| Organized Department: | ELECTRONICS AND COMMUNICATION ENGINEERING | | | | |
| Participant Year: | 2/3/4 | Semester: | EVEN | No. of Students Registered: | 36 |
| Venue: | Online Gmeet link - “https://meet.google.com/zdv-ajkb-xsa” | | | | |

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

Ref. SCE / ECE / Students / VAC / 2020 - 2021 / EVEN

19.04.2021

CIRCULAR

In order to bridge the curricular gap between the Academic Syllabus and Industry requirements, Department of Electronics and Communication Engineering and IQAC of our Institution in association with Ragul Electronics, is organizing a Value Added Course (VAC) for the students of II, III and IV year of ECE on the title "Machine Learning for Signal Processing" from 26.04.2021 to 30.04.2021. At the end of the VAC, course completion certificates will be issued to the eligible participants as per the following norms.

- Students, who are securing more than 70% on total score in the VAC test and secured more than 75% in VAC attendance is eligible to receive the course completion certificate for the VAC attended.

| | | |
|------------------------------------|---|--|
| Resource Person Details | Mr.Ragul, CEO, Ragul Electronics, Chennai-600002 | Ragul, Trainer, Ragul Electronics, Chennai-600002 |
| Venue | Online Gmeet link - " https://meet.google.com/zdv-ajkb-xsa " | |


HoD/ECE


PRINCIPAL

Copy to:

1. Chairman & Secretary for information
2. Principal office
3. IQAC Co-Ordinator
4. Class In charges - II, III & IV-Year ECE
5. II, III & IV-Year ECE Students
6. ECE Notice Board
7. Department File


Dr.M.VIJAYAKUMAR M.E., Ph.D.,
PRINCIPAL



SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 633 055, Tirupur (Dt)

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
 ENGINEERING**

Ref: SCE / ECE / Students / VAC / 2020 – 2021 / EVEN

19.04.2021

SYLLABUS - VALUE ADDED COURSE

“Machine Learning for Signal Processing”

From 26.04.2021 to 30.04.2021 (5 days)

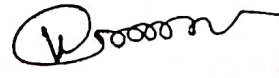
Duration : 30 Hours

Academic Year : 2020 -2021 /EVEN

| S.No. | Toples Covered | Duration (In Hours) | Date |
|--------------------|--|------------------------|------------|
| 1 | Introduction to Machine Learning and Signal Processing | 3 | 26.04.2021 |
| 2 | Fundamentals of Signal Processing | 3 | 26.04.2021 |
| 3 | Introduction to Machine Learning Algorithms | 3 | 27.04.2021 |
| 4 | Feature Extraction and Selection | 3 | 27.04.2021 |
| 5 | Classification and Regression In Signal Processing | 3 | 28.04.2021 |
| 6 | Deep Learning for Signal Processing | 3 | 28.04.2021 |
| 7 | Time-Frequency Analysis | 3 | 29.04.2021 |
| 8 | Signal Denoising and Enhancement | 3 | 29.04.2021 |
| 9 | Pattern Recognition in Signals | 3 | 30.04.2021 |
| 10 | Real-world Applications and Case Studies | 3 | 30.04.2021 |
| Total Hours | | 30 | - |

After successful completion of 30 Hours VAC, the assessment test for the VAC titled “Machine Learning for Signal Processing” will be conducted on 30.04.2021.


 VAC Coordinator


 HoD/ECE


Dr.M.VIJAYAKUMAR ME., Ph.D.,
 PRINCIPAL

SASURIE COLLEGE OF ENGINEERING,
 Vijayamangalam - 638 056, Tirupur (Dt).



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SASURIE
COLLEGE OF ENGINEERING
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Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

STUDENTS PARTICIPATION LIST - VALUE ADDED COURSE

"Machine Learning for Signal Processing"

From 26.04.2021 to 30.04.2021 (5 days)

Duration : 30 Hours

Academic Year : 2020 -2021 /EVEN

| S.No. | Reg No. | Name of the Student | Year / Branch |
|-------|--------------|---------------------|---------------|
| 1. | 732419106001 | FEMBY S | II/ECE |
| 2. | 732419106003 | MOWNEESH N | II/ECE |
| 3. | 732419106004 | SARANYA DEVI V | II/ECE |
| 4. | 732419106005 | UMESH KUMAR S | II/ECE |
| 5. | 732419106006 | YOGESH S | II/ECE |
| 6. | 732419106301 | KAVIYA PRIYA G | II/ECE |
| 7. | 732419106302 | VIVEK S M | II/ECE |
| 8. | 732418106004 | SABITHA A | III/ECE |
| 9. | 732418106005 | SUJITHRA P | III/ECE |
| 10. | 732417106002 | AJITHKUMAR K | IV/ECE |
| 11. | 732417106003 | AJITHKUMAR S | IV/ECE |
| 12. | 732417106005 | ARAVIND V | IV/ECE |
| 13. | 732417106008 | GOKILAVANI M | IV/ECE |
| 14. | 732417106010 | JAYASEELAN B | IV/ECE |
| 15. | 732417106011 | KAYALVIZHI K | IV/ECE |
| 16. | 732417106013 | KOUSALYA DEVI R | IV/ECE |
| 17. | 732417106016 | NASREEN BANU J | IV/ECE |
| 18. | 732417106017 | NATESH R | IV/ECE |
| 19. | 732417106018 | NIMISHA M | IV/ECE |
| 20. | 732417106019 | NISHANTH S | IV/ECE |
| 21. | 732417106020 | NITHYANANTHAM N | IV/ECE |
| 22. | 732417106021 | PARTHIPAN S | IV/ECE |
| 23. | 732417106023 | RANJANI S | IV/ECE |
| 24. | 732417106024 | SANTHIYA R | IV/ECE |
| 25. | 732417106027 | SHANMUGAPRIYA S | IV/ECE |
| 26. | 732417106028 | SHARMILA M | IV/ECE |
| 27. | 732417106030 | THANGARATHINAM A | IV/ECE |
| 28. | 732417106031 | VEERASOWNDARIYA P | IV/ECE |

M

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL



SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 650 056, Tirupur (Dt).

STUDENTS PARTICIPATION LIST - VALUE ADDED COURSE

| S.No. | Reg No. | Name of the Student | Year / Branch |
|-------|--------------|---------------------|---------------|
| 29. | 732417106033 | VINITHA B | IV/ECE |
| 30. | 732417106501 | ARTHI K | IV/ECE |
| 31. | 732417106701 | PRATHEEPA S | IV/ECE |
| 32. | 732417106702 | SELVARANI C | IV/ECE |
| 33. | 732417106703 | KANAGARAJ B | IV/ECE |
| 34. | 732417106704 | POOVIZHI R | IV/ECE |
| 35. | 732417106705 | PRIYADHARSHINI S | IV/ECE |
| 36. | 732417106706 | HEMAPRAKASH C | IV/ECE |

V. Vijayanthi

VAC Coordinator

Dr. M. Vijayakumar

HoD/ECE

Dr. M. Vijayakumar

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL

SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 633 056, Tirupur (Dt).



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

“Machine Learning for Signal Processing”


From 26.04.2021 to 30.04.2021 (5 days)

Duration : 30 Hours

Academic Year : 2020 -2021/ EVEN

| S.No | Reg No. | Name of the Student | Year/ Branch | 26.04.2021 | | 27.04.2021 | | 28.04.2021 | | 29.04.2021 | | 30.04.2021 | | No. of Hours Attended | Signature of the Student |
|------|--------------|---------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-----------------------------|-----------------------------|
| | | | | FN | AN | FN | AN | FN | AN | FN | AN | FN | AN | | |
| 1. | 732419106001 | FEMEY S | II/ECE | / | / | / | A | / | / | / | / | / | / | 27 | S. Femeys |
| 2. | 732419106003 | MOWNEESH N | II/ECE | / | / | / | / | / | / | / | / | / | / | 30 | N. Mowneesh |
| 3. | 732419106004 | SARANYA DEVI V | II/ECE | / | / | A | / | / | / | / | / | / | / | 27 | Sarany a. V. |
| 4. | 732419106005 | UMESH KUMAR S | II/ECE | / | / | / | / | A | A | / | / | / | / | 24 | S. Umesh kumar |
| 5. | 732419106006 | YOGESH S | II/ECE | / | / | / | / | / | / | / | / | / | / | 30 | S. Yogesh |
| 6. | 732419106301 | KAVIYA PRIYA G | II/ECE | / | / | A | A | / | / | / | / | / | / | 24 | Kaviya Priya |
| 7. | 732419106302 | VIVEK S M | II/ECE | / | / | / | / | / | / | / | / | / | / | 30 | Vivek S M |
| 8. | 732418106004 | SABITHA A | III/ECE | / | / | / | / | A | A | / | / | / | / | 24 | S. Sabitha |
| 9. | 732418106005 | SUJITHRA P | III/ECE | / | / | / | / | A | / | / | / | / | / | 27 | S. Sujithra |
| 10. | 732417106002 | AJITHKUMAR K | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | Ajith Kumar |
| 11. | 732417106003 | AJITHKUMAR S | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | Ajith Kumar |
| 12. | 732417106005 | ARAVIND V | IV/ECE | / | / | / | / | / | / | A | A | / | / | 24 | V. Aravind |
| 13. | 732417106008 | GOKILAVANI M | IV/ECE | / | / | / | / | / | A | / | / | / | / | 27 | Gokilavani |

Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL


SASURIE COLLEGE OF ENGINEERING,
 Vijayamangalam - 638 056, Tirupur (Dt).

STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

| S.No | Reg No. | Name of the Student | Year/ Branch | 26.04.2021 | | 27.04.2021 | | 28.04.2021 | | 29.04.2021 | | 30.04.2021 | | No. of Hours Attended | Signature of the Student |
|------|--------------|---------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-----------------------------|-----------------------------|
| | | | | FN | AN | FN | AN | FN | AN | FN | AN | FN | AN | | |
| 14. | 732417106010 | JAYASEELAN B | IV/ECE | / | / | / | / | / | / | A | / | / | / | 27 | <i>Jay</i> |
| 15. | 732417106011 | KAYALVIZHI K | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>K. Kayali</i> |
| 16. | 732417106013 | KOUSALYA DEVIR | IV/ECE | / | / | / | / | / | A | / | / | / | / | 27 | <i>Kousalya P.</i> |
| 17. | 732417106016 | NASREEN BANU J | IV/ECE | / | / | / | / | / | / | A | A | / | / | 24 | <i>Nasreen</i> |
| 18. | 732417106017 | NATESH R | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>Natesh</i> |
| 19. | 732417106018 | NIMISHA M | IV/ECE | / | / | / | / | A | / | / | / | / | / | 27 | <i>Nimisha</i> |
| 20. | 732417106019 | NISHANTH S | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>S. Nishanth</i> |
| 21. | 732417106020 | NITHYANANTHAM N | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>Nithya</i> |
| 22. | 732417106021 | PARTHIPAN S | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>Parth</i> |
| 23. | 732417106023 | RANJANI S | IV/ECE | / | / | / | / | / | / | / | A | / | / | 27 | <i>S. Ranjani</i> |
| 24. | 732417106024 | SANTHIYA R | IV/ECE | / | / | / | / | / | / | / | A | / | / | 27 | <i>Santhiya</i> |
| 25. | 732417106027 | SHANMUGAPRIYA S | IV/ECE | / | / | / | / | / | / | A | A | / | / | 24 | <i>S. Shanmuga</i> |
| 26. | 732417106028 | SHARMILA M | IV/ECE | / | / | / | / | A | A | / | / | / | / | 24 | <i>M. Sharmila</i> |
| 27. | 732417106030 | THANGARATHINAM A | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>Thangarathinam</i> |
| 28. | 732417106031 | VEERASOWNDARIYA P | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>P. Veerasowndariya</i> |
| 29. | 732417106033 | VINITHA B | IV/ECE | / | / | / | / | A | A | / | / | / | / | 24 | <i>B. Vinitha</i> |
| 30. | 732417106501 | ARTHI K | IV/ECE | / | / | / | A | / | / | / | / | / | / | 27 | <i>K. Arthi</i> |
| 31. | 732417106701 | PRATHEEPA S | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | <i>Pratheepa S</i> |
| 32. | 732417106702 | SELVARANI C | IV/ECE | / | / | A | A | / | / | / | / | / | / | 24 | <i>Selvarani C</i> |

Dr. M. VIJAYAKUMAR ME., Ph.D.,

PRINCIPAL



SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).


STUDENTS ATTENDANCE LIST - VALUE ADDED COURSE

| S.No | Reg No. | Name of the Student | Year/ Branch | 26.04.2021 | | 27.04.2021 | | 28.04.2021 | | 29.04.2021 | | 30.04.2021 | | No. of Hours Attended | Signature of the Student |
|------|--------------|---------------------|-----------------|------------|----|------------|----|------------|----|------------|----|------------|----|-----------------------------|-----------------------------|
| | | | | FN | AN | FN | AN | FN | AN | FN | AN | FN | AN | | |
| 33. | 732417106703 | KANAGARAJ B | IV/ECE | / | / | A | A | / | / | / | / | / | / | 24 | B. K. Raj |
| 34. | 732417106704 | POOVIZHI R | IV/ECE | / | / | / | / | / | A | / | / | / | / | 27 | R. Paji |
| 35. | 732417106705 | PRIYADHARSHINI S | IV/ECE | / | / | / | / | / | / | / | / | / | / | 30 | P. S. S. S. |
| 36. | 732417106706 | HEMAPRAKASH C | IV/ECE | / | / | / | / | / | / | A | A | / | / | 24 | Hem prakash |


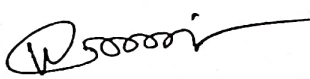

K. S. S. S.
VAC Coordinator

R. S. S. S.
HoD/ECE

M. S. S. S.
Dr. M. VIJAYAKUMAR M.E., Ph.D.,
PRINCIPAL

 SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 628 056, Tirupur (Dt).

Report on Value Added Course

| | | | | | |
|--|--|---|--|--|----------|
| Title: | Machine Learning for Signal Processing | | | | |
| Resource Person: | Mr.Ragul, CEO, Ragul Electronics, Chennai-600002 | | Ragul, Trainer, Ragul Electronics, Chennai-600002 | | |
| Date of conduct from : | 26.04.2021 | To: | 30.04.2021 | Duration: | 30 Hours |
| Organized by : | ELECTRONICS AND COMMUNICATION ENGINEERING and IQAC in association with Ragul Electronics | | | | |
| Academic Year: | 2020 – 2021 | | Semester: | EVEN | |
| Participant Year: | II, III, IV Year ECE | | No. of Students Participated : | 36 | |
| Venue: | Online Gmeet link - “https://meet.google.com/zdv-ajkb-xsa” | | | | |
| Outcome of Value Added Course (VAC) | | | | | |
| <p>At the end of the Course, Students can be able to</p> <ul style="list-style-type: none"> • Ability to comprehend the fundamental concepts of machine learning and its relevance to signal processing. • Capability to apply and implement various machine learning algorithms in the context of signal processing tasks. • Competency in applying classification and regression techniques to solve signal processing problems. • Ability to utilize machine learning for effective denoising and enhancement of signals. • Proficiency in applying machine learning to solve real-world signal processing challenges. | | | | | |
| Assessment Process | | | | | |
| <ul style="list-style-type: none"> • Students, who are securing more than 70% on total score in the VAC test and secured more than 75% in VAC attendance is eligible to receive the course completion certificate for the VAC attended • Total Score = (0.5 *Attendance in VAC out of 100 percentage + 0.5 *Test mark in VAC out of 100 marks) | | | | | |
| No. of students successfully completed the VAC course is <u>36 Students</u> based on the above assessment process. | | | | | |
|  VAC Co-ordinator | |  HoD/ ECE | |  Principal | |



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Certificate of Participation

This is to certify that Mr./Ms UMESH KUMAR S,II/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the Department of Electronics and Communication Engineering in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).

S. Srinivasan
Coordinator

Dooni
Head of the Department

SAD
Principal

11/6
Dr.M.VIJAYAKUMAR ME., Ph.D.
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 633 056, Tiruppur (Dt).



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Certificate of Participation


This is to certify that Mr./Ms YOGESH S,II/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the Department of Electronics and Communication Engineering in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).


Coordinator


Head of the Department


Principal



 Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vayamangalam - 638 006, Tiruppur (Dt).



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Certificate of Participation

This is to certify that Mr./Ms SUJITHRA P,III/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the Department of Electronics and Communication Engineering in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).

K. Sri Renuka
Co-ordinator

[Signature]
Head of the Department

[Signature]
Principal

Dr.M.VIJAYAKUMAR ME., Ph.D.,

PRINCIPAL



SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

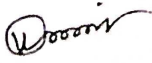


DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING


Certificate of Participation

This is to certify that Mr./Ms SABITHA A,III/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the *Department of Electronics and Communication Engineering* in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).


Coordinator


Head of the Department


Principal


Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 036, Tiruppur (Dt).



DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING


Certificate of Participation

This is to certify that Mr./Ms VINITHA B,IV/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the Department of Electronics and Communication Engineering in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).

V. S. Ravi
Co-ordinator

W. S. Ravi
Head of the Department

Dr. M. Vijayakumar
Principal


 Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

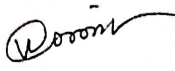


DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Certificate of Participation

This is to certify that Mr./Ms THANGARATHINAM A.IV/ECE has successfully completed the Value Added Course titled "Machine Learning for Signal Processing" Organized by the Department of Electronics and Communication Engineering in association with IQAC of Sasurie College of Engineering and Ragul Electronics from 26-04-2021 to 30-04-2021 (5 Days).


Co-ordinator


Head of the Department


Principal


Dr.M.VIJAYAKUMAR ME., Ph.D.,
PRINCIPAL
SASURIE COLLEGE OF ENGINEERING,
Vijayamangalam - 638 056, Tirupur (Dt).

DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

TEST QUESTION PAPER - VALUE ADDED COURSE

“Machine Learning for Signal Processing”

From 26.04.2021 to 30.04.2021 (5 days)

Duration : 30 Hours

Academic Year : 2020-2021 /EVEN

Date of Test : 30.04.2021

MULTIPLE CHOICE QUESTIONS (25 X 1 = 25 Marks)

Name of the Student:

Year/Sem:

AU Register Number:

Answer all the questions:

1. What is the primary goal of signal processing?
 - a. Image recognition
 - b. Feature extraction
 - c. Noise reduction
 - d. Data visualization

2. Which domain is commonly used for signal analysis?
 - a. Spatial domain
 - b. Time domain
 - c. Frequency domain
 - d. Both b and c

3. What is a key advantage of unsupervised learning in signal processing?
 - a. Predicting future values
 - b. Discovering hidden patterns
 - c. Classifying data
 - d. Regression analysis

4. Which algorithm is commonly used for supervised learning in signal processing?
 - a. K-means
 - b. Decision trees
 - c. Support Vector Machines (SVM)
 - d. Principal Component Analysis (PCA)


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Vijayamangalam - 638 050, Tirupur (Dt).

5. What does feature extraction involve in the context of signal processing?
 - a. Removing noise from signals
 - b. Selecting relevant characteristics of signals
 - c. Converting signals to the frequency domain
 - d. Training machine learning models

6. Which deep learning architecture is often used in signal processing tasks?
 - a. Convolutional Neural Network (CNN)
 - b. Recurrent Neural Network (RNN)
 - c. Decision Tree
 - d. K-means clustering

7. What does the Short-Time Fourier Transform (STFT) provide in signal processing?
 - a. Time-domain representation
 - b. Frequency-domain representation over time
 - c. Feature extraction
 - d. Noise reduction

8. In signal processing, what is the primary goal of denoising?
 - a. Adding noise to signals
 - b. Reducing unwanted signals
 - c. Enhancing signal clarity
 - d. Extracting features from signals

9. What is a common application of pattern recognition in signal processing?
 - a. Speech recognition
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10. Which technique is suitable for time-frequency analysis in signal processing?
 - a. Fourier Transform
 - b. Wavelet Transform
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11. How can machine learning be applied to signal processing for classification tasks?
 - a. Identifying relevant features
 - b. Predicting future values
 - c. Clustering similar signals
 - d. Enhancing signal quality

12. What role does regression play in signal processing?
 - a. Classifying signals
 - b. Predicting continuous values
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13. What is a neural network layer that extracts features from input signals?
 - a. Output layer
 - b. Input layer
 - c. Hidden layer
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14. What is the primary focus of Wavelet Transform in signal processing?
 - a. Frequency representation
 - b. Time and frequency representation
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 - d. Noise reduction

15. In machine learning, what is the purpose of feature selection?
 - a. Enhancing signal clarity
 - b. Reducing the dimensionality of data
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16. Which machine learning technique is used for image recognition in signal processing?
 - a. K-means clustering
 - b. Support Vector Machines (SVM)
 - c. Convolutional Neural Network (CNN)
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17. What does the acronym SVM stand for in the context of machine learning?
 - a. Supervised Vector Model
 - b. Support Vector Machines
 - c. Signal Variation Model
 - d. Spatial Vector Mapping

18. What is a benefit of using deep learning in signal processing?
 - a. Reduced computational complexity
 - b. Improved accuracy in complex tasks
 - c. Limited capacity for feature extraction
 - d. Dependence on labeled data

19. How does the Short-Time Fourier Transform differ from the Fourier Transform?
- STFT provides time and frequency information
 - Fourier Transform is only in the time domain
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 - Fourier Transform is limited to short-time analysis
20. What does the term "supervised learning" imply in the context of machine learning?
- Learning without labeled data
 - Learning with guidance from labeled data
 - Learning only from feature extraction
 - Learning in an unsupervised environment
21. Which of the following is NOT a type of machine learning algorithm?
- K-means clustering
 - Fast Fourier Transform (FFT)
 - Decision trees
 - Support Vector Machines (SVM)
22. What is the primary objective of signal enhancement in signal processing?
- Increasing signal complexity
 - Reducing unwanted noise in signals
 - Introducing noise to signals
 - Transforming signals to the frequency domain
23. In machine learning, what is a decision tree used for?
- Feature extraction
 - Classification and regression
 - Time-frequency analysis
 - Denoising signals
24. Which of the following is a common drawback of using deep learning in signal processing?
- Limited capability for feature extraction
 - Dependence on labeled data
 - Reduced accuracy in complex tasks
 - Low computational complexity
25. How does clustering differ from classification in machine learning?
- Clustering involves grouping similar data points
 - Classification assigns predefined labels to data points
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TEST QUESTION ANSWER KEY - VALUE ADDED COURSE

“Machine Learning for Signal Processing”

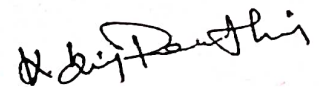
From 26.04.2021 to 30.04.2021 (5 days)

Duration : 30 Hours

Academic Year : 2020 -2021 /EVEN

Date of Test : 30.04.2021

| | | | | | | | | | |
|---|---|----|---|----|---|----|---|----|---|
| 1 | c | 6 | a | 11 | a | 16 | c | 21 | b |
| 2 | d | 7 | b | 12 | b | 17 | b | 22 | b |
| 3 | b | 8 | c | 13 | c | 18 | b | 23 | b |
| 4 | c | 9 | a | 14 | b | 19 | a | 24 | b |
| 5 | b | 10 | b | 15 | b | 20 | b | 25 | a |


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

TEST QUESTION PAPER - VALUE ADDED COURSE

“Machine Learning for Signal Processing”

From 26.04.2021 to 30.04.2021 (5 days)

Duration : 30 Hours

Academic Year : 2020 -2021 /EVEN

Date of Test : 30.04.2021

MULTIPLE CHOICE QUESTIONS (25 X 1 = 25 Marks)

Name of the Student: Omeshkumar. S

Year/Sem: II / IV

AU Register Number: 732419106005

Answer all the questions:

1. What is the primary goal of signal processing?
 - a. Image recognition
 - b. Feature extraction
 - c. Noise reduction
 - d. Data visualization
2. Which domain is commonly used for signal analysis?
 - a. Spatial domain
 - b. Time domain
 - c. Frequency domain
 - d. Both b and c
3. What is a key advantage of unsupervised learning in signal processing?
 - a. Predicting future values
 - b. Discovering hidden patterns
 - c. Classifying data
 - d. Regression analysis
4. Which algorithm is commonly used for supervised learning in signal processing?
 - a. K means
 - b. Decision trees
 - c. Support Vector Machines (SVM)
 - d. Principal Component Analysis (PCA)

21

25
V. G. S.

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5. What does feature extraction involve in the context of signal processing?
 - a. Removing noise from signals
 - b. Selecting relevant characteristics of signals
 - c. Converting signals to the frequency domain
 - d. Training machine learning models

6. Which deep learning architecture is often used in signal processing tasks?
 - a. Convolutional Neural Network (CNN)
 - b. Recurrent Neural Network (RNN)
 - c. Decision Tree
 - d. K-means clustering

7. What does the Short-Time Fourier Transform (STFT) provide in signal processing?
 - a. Time-domain representation
 - b. Frequency-domain representation over time
 - c. Feature extraction
 - d. Noise reduction

8. In signal processing, what is the primary goal of denoising?
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12. What role does regression play in signal processing?
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ASSESSMENT SHEET - VALUE ADDED COURSE

“Machine Learning for Signal Processing”

From 26.04.2021 to 30.04.2021 (5 days)

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Academic Year : 2020 -2021/ EVEN

| S.No | Reg No. | Name of the Student | Year/ Branch | Attendance Details | | VAC-MCQ TEST | | OVERALL Score (100) (50% of A + 50% of B) |
|------|--------------|---------------------|-----------------|-----------------------------|----------------------------------|------------------------------|------------------------------|---|
| | | | | No. of Hours Attended | Attendance Score (100) (A) | No. of Correct Answers | MCQ Score (100) (B) | |
| 1. | 732419106001 | FEMEY S | II/ECE | 27 | 90 | 19 | 76 | 83 |
| 2. | 732419106003 | MOWNEESH N | II/ECE | 30 | 100 | 20 | 80 | 90 |
| 3. | 732419106004 | SARANYA DEVI V | II/ECE | 27 | 90 | 19 | 76 | 83 |
| 4. | 732419106005 | UMESH KUMAR S | II/ECE | 24 | 80 | 21 | 84 | 82 |
| 5. | 732419106006 | YOGESH S | II/ECE | 30 | 100 | 21 | 84 | 92 |
| 6. | 732419106301 | KAVIYA PRIYA G | II/ECE | 24 | 80 | 20 | 80 | 80 |
| 7. | 732419106302 | VIVEK S M | II/ECE | 30 | 100 | 19 | 76 | 88 |
| 8. | 732418106004 | SABITHA A | III/ECE | 24 | 80 | 20 | 80 | 80 |
| 9. | 732418106005 | SUJITHRA P | III/ECE | 27 | 90 | 19 | 76 | 83 |
| 10. | 732417106002 | AJITHKUMAR K | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 11. | 732417106003 | AJITHKUMAR S | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 12. | 732417106005 | ARAVIND V | IV/ECE | 24 | 80 | 20 | 80 | 80 |
| 13. | 732417106008 | GOKILAVANI M | IV/ECE | 27 | 90 | 19 | 76 | 83 |

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|------|--------------|---------------------|-----------------|-----------------------------|----------------------------------|------------------------------|------------------------------|---|
| | | | | No. of Hours Attended | Attendance Score (100) (A) | No. of Correct Answers | MCQ Score (100) (B) | |
| 14. | 732417106010 | JAYASEELAN B | IV/ECE | 27 | 90 | 19 | 76 | 83 |
| 15. | 732417106011 | KAYALVIZHI K | IV/ECE | 30 | 100 | 20 | 80 | 90 |
| 16. | 732417106013 | KOUSALYA DEVI R | IV/ECE | 27 | 90 | 19 | 76 | 83 |
| 17. | 732417106016 | NASREEN BANU J | IV/ECE | 24 | 80 | 21 | 84 | 82 |
| 18. | 732417106017 | NATESH R | IV/ECE | 30 | 100 | 21 | 84 | 92 |
| 19. | 732417106018 | NIMISHA M | IV/ECE | 27 | 90 | 19 | 76 | 83 |
| 20. | 732417106019 | NISHANTH S | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 21. | 732417106020 | NITHYANANTHAM N | IV/ECE | 30 | 100 | 18 | 72 | 86 |
| 22. | 732417106021 | PARTHIPAN S | IV/ECE | 30 | 100 | 21 | 84 | 92 |
| 23. | 732417106023 | RANJANI S | IV/ECE | 27 | 90 | 21 | 84 | 87 |
| 24. | 732417106024 | SANTHIYA R | IV/ECE | 27 | 90 | 21 | 84 | 87 |
| 25. | 732417106027 | SHANMUGAPRIYA S | IV/ECE | 24 | 80 | 20 | 80 | 80 |
| 26. | 732417106028 | SHARMILA M | IV/ECE | 24 | 80 | 20 | 80 | 80 |
| 27. | 732417106030 | THANGARATHINAM A | IV/ECE | 30 | 100 | 20 | 80 | 90 |
| 28. | 732417106031 | VEERASOWNDARIYA P | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 29. | 732417106033 | VINITHA B | IV/ECE | 24 | 80 | 20 | 80 | 80 |
| 30. | 732417106501 | ARTHI K | IV/ECE | 27 | 90 | 19 | 76 | 83 |
| 31. | 732417106701 | PRATHEEPA S | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 32. | 732417106702 | SELVARANI C | IV/ECE | 24 | 80 | 20 | 80 | 80 |

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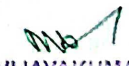

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| 33. | 732417106703 | KANAGARAJ B | IV/ECE | 24 | 80 | 20 | 80 | 80 |
| 34. | 732417106704 | POOVIZHI R | IV/ECE | 27 | 90 | 19 | 76 | 83 |
| 35. | 732417106705 | PRIYADHARSHINI S | IV/ECE | 30 | 100 | 19 | 76 | 88 |
| 36. | 732417106706 | HEMAPRAKASH C | IV/ECE | 24 | 80 | 20 | 80 | 80 |


 VAC Coordinator


 HOD/ECE


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