ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Dt: 6-08-2018

To
The Principal
Eswar College of Engineering
Narasaraopet

Through HOD-ECE

From
SK Bhavani
Assistant Professor
Faculty Coordinator

Sub: Requesting for permission to conduct a value-added course on **Advanced Topics in Probability and Random Process** from 20-08-2018 to 25-08-2018.

Dear Sir,

The Department of ECE is planning to organize a 1 week value-added course on **Advanced Topics in Probability and Random Process** from 20-08-2018 to 25-08-2018.

Total Number of Students registered: 123 No's (II B.Tech I Sem ECE-A and B).

Resource Person: **SK Farmanulla**, Associate Professor, Department of ECE, Eswar College of Engineering College, Narasaraopet.

Certificate Criteria: 60% of marks in Evaluation, 80% of attendance

In connection with the programme, we request your approval to organize the same and to make the programme a grand success.

Thanks and regards,

Name:,B. Bhavani

Signature

B. BHAVANI

HOD- Comments please Consider – K. Sarma

Department of ECE
Eswar College of Engineering
Kesanupalli (V), Narasaraopet - 522 543.

Principal Comments: Recommended

Approved/ Rejected

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601. Guntur (Dt.)

ESWAR
COLLEGE OF ENGINEERING
Approved by AICTE, New Delhi & Affiliated to JNTUK Kakinada, Kakinada, AP
Kesanupalli (V), Narasaraopet - 522549. www.eswarcollegeofengg.org

+91 98855 78652
+91 99636 34414
Email: eswarcollegeofengg@gmail.com
Website: www.eswarcollegeofengg.org

Date: 13-08-2018

CIRCULAR

All B.Tech II/I ECE students are hereby notified that a value added course titled "Advanced Topics in Probability and Random Process" will be conducted from 20-08-2018 to 25-08-2018It is mandatory for all students to enroll their names with course co-ordination Sk Sharif, Assistant Professor, Department of ECE.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

Copy to.

1. A. O
2. Accounts
3. Library
4. Exam Cell
5. HOD's

CIVIL - S&H-
ECE - EEE -
CSE -

Class Rooms:

209, 210 - P/Lab 212 213 214 215
216 217
SAH 234 236 237 116
232 - GD 235 113

Kesanupalli (V), Narasaraopet – 522601, A.P.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

Objectives:

- To provide students with an advanced understanding of probability theory, including conditional probability, independence, and multivariate distributions.
- To familiarize students with various stochastic processes, such as Markov chains, Poisson processes, and Gaussian processes, emphasizing their properties and applications.
- To enable students to analyze and model real-world phenomena using advanced probability and random process theories, particularly in the fields of engineering, finance, and data science.
- To equip students with the analytical skills and tools required to solve complex problems related to queuing theory, random signals, noise, and other advanced topics in probability and random processes.

Outcomes

Participants will gain an advanced understanding of probability theory and random processes.
Participants will develop advanced analytical and problem-solving skills in stochastic systems.
Participants will acquire hands-on experience in applying advanced concepts to real-world problems.
Participants will be prepared for further studies and research in probability theory and random processes.

Course Content

- **Advanced Probability Theory**
- **Stochastic Processes**
- **Advanced Random Processes**
- **Applications in Engineering and Data Science**
- **Advanced Topics and Future Trends**

Resource Person

SK Farmanulla, Associate Professor, Department of ECE, Eswar College of Engineering College, Narasaraopet

Eligibility:
This course is intended for II B.Tech I Sem ECE

Registration fee

Registration Fee: **No registration fee**

Participant (Includes refreshment, training and certificate)

Scheduled date

20-08-2018 to 25-08-2018

Last date For Receipt of Application

26-08-2018.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (DL)

ONE WEEK ADD-ON COURSE
on
ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS
Organized by
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING,
ESWAR COLLEGE OF ENGINEERING
Kesanupalli (V), Narasaraopet
on

20-08-2018 to 25-08-2018

Registration Form

Name_____

Department:

Designation:

Organisation:

Address:

Contact No.:___

E-mail:

About college

Eswar College of Engineering was established during the academic year 2008 -09 and sponsored by Shaik Dada Saheb Charitable Trust, with a vision of Imparting futuristic technical education and instill high patterns of discipline in order to set global standards and making the students technologically superior and ethicallystrong. The young and dynamic promoters haveselected this rural area with lot of foresight. The Institution is spread over 22 acres of lush green landscape and located at 5th km stone on the Narasaraopet–Chilakaluripet Road. The Institutionoffers the UG Courses B.Tech-CIVIL, EEE, ECE, CSE, AME, ME, PG Courses M.Tech-PE&ED,DECS,CSE,CAD/CAM & MBA. The tourist places near by are Kotappakonda, Amaravathi, Surylanka Beach. **Eswar College of Engineering is having MOU with International Institute of Information Technology IIIT- Hyderabad and introduced CIT Programme forstudents Digital Class facility is also provided in association with Manipal K12, Bangalore**, the very first college in Andhra Pradesh

About department

The Department of Electronics & Communication Engineering came into existence in 2001 immediately when the institute was founded. It started with an intake of 60 students which was subsequently raised to 120 over a period of time. It offers 4 year B.Tech degree program in Electronics & Communication Engineering, 2 Year M.Tech degree in Digital Electronics and Communication system with an intake of 18.

Vision: To excel in the emerging fields of electronics and communication engineering by conducting cutting-edge research, advocating for ethical principles, and addressing societal needs

Mission:

·To provide strong fundamentals and technical skills through effective teaching learning Methodologies, disseminate knowledge by organizing seminars, field visits and workshops.

·To provide an ambiance for research through collaborations with industry and academia.

·To develop responsible citizens and professional leaders with high ethical and moral values, who contribute in

CHIEF PATRONS

SRI.SHAIK.MEERAVALI

Chairman

SRI.SHAIK.KAREEM MOHIDDIN

Secretary & Correspondent

SRI.SHAIK MASTHAN SHARIF

Managing Director

PATRON

DR.G. NAGA MALLESWARA RAO

Principal

Convener

Dr SK Mirza Shafi shahasavar,

HOD-ECE Department,

The Co-Ordinator,

ONE WEEK ADD-ON COURSE

DIGITAL CONTROL SYSTEM

ESWAR COLLEGE OF ENGINEERING,

KESANUPALLI (V),

NARASARAOPET (M),

GUNTUR-DT

Ph.No: 8985793922, 9[illegible]

E-mail: www.eswarcollegeofengg.org

www.eswarcollegeofengg.blogspot.com

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

Declaration:

The above is formation is true to the best of my knowledge. I agree to abide by the rules and regulations governing the course. If selected I shall attend the course for the entire the duration. I also under take the responsibilities to inform the coordinator in case I am unable to attend the course

Place:

Date:

Signature of the applicant

Sponsorship certificate:

Mr/ Mrs./

Dr.....

Is an employee of our institute/ organization and is here by sponsored and will be permitted to attend the course, if selected

Place

Date

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Course Name: Advanced Topics in Probability and Random Process

Proposed Syllabus

Day 1: Advanced Probability Theory

Conditional Probability and Independence, Conditional probability, Bayes' theorem, Independent events and random variables, Multivariate Probability Distributions,Joint, marginal, and conditional distributions, Covariance and correlation

Day 2: Stochastic Processes

Introduction to Stochastic Processes, Definition and classification, Stationary and non-stationary processes, Markov Chains, Definition, properties, and classifications, Transition probability matrix

Day 3: Advanced Random Processes

Gaussian and Non-Gaussian Processes, Characteristics and properties, Applications in signal processing and communication, Poisson Processes and Renewal Theory, Definition, properties, and applications, Renewal reward processes

Day 4: Applications in Engineering and Data Science

Queuing Theory, Basic queueing models, Little's theorem and system performance analysis, Random Signals and Noise, Power spectral density, White noise, colored noise, and their properties

Day 5: Advanced Topics and Future Trends

Bayesian Inference and Machine Learning, Introduction to Bayesian statistics, Bayesian methods in machine learning, Advanced Topics and Emerging Trends, Advanced topics in probability theory, Future trends and research opportunities

CO Statements

CO's	CO Statements
CO1	Participants will gain an advanced understanding of probability theory and random processes.
CO2	Participants will develop advanced analytical and problem-solving skills in stochastic systems.
CO3	Participants will acquire hands-on experience in applying advanced concepts to real-world problems.
CO4	Participants will be prepared for further studies and research in probability theory and random processes.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback form

Course Name: ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS

Please place tick marks at the respective column

S.No	Particulars	Excellent	Very good	Good	Average	Poor
1	How well did you achieve this learning goal in this course?	✓				
2	The course contents meet the expectation		✓			
3	The lecture sequence was well planned	✓				
4	Lecture content illustrated with adequate examples		✓			
5	Level of the course up to the mark?	✓				
6	Course highlights the level of new knowledge	✓				
7	The lecture was clear and easy to understand?		✓			
8	Teaching aids are effectively used?	✓				
9	The resource person interacted well and cleared the doubts.		✓			
10	Overall organization of the course		✓			

Comments

1. we learn about Gaussian and non-Gaussian processes.

2.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (DL)

K.Akhila

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708

Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback form

Course Name: ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS

Please place tick marks at the respective column

S.No	Particulars	Excellent	Very good	Good	Average	Poor
1	How well did you achieve this learning goal in this course?	✓				
2	The course contents meet the expectation		✓			
3	The lecture sequence was well planned	✓				
4	Lecture content illustrated with adequate examples		✓			
5	Level of the course up to the mark?	✓				
6	Course highlights the level of new knowledge	✓				
7	The lecture was clear and easy to understand?	✓				
8	Teaching aids are effectively used?		✓			
9	The resource person interacted well and cleared the doubts.		✓			
10	Overall organization of the course		✓			

Comments

1. We discussed about Advanced Probability Theory.

2.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601. Guntur (Dt.)

Sk. sheerna

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com

web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback form

Course Name: ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS

Please place tick marks at the respective column

S.No	Particulars	Excellent	Very good	Good	Average	Poor
1	How well did you achieve this learning goal in this course?		✓			
2	The course contents meet the expectation	✓				
3	The lecture sequence was well planned	✓				
4	Lecture content illustrated with adequate examples		✓			
5	Level of the course up to the mark?		✓			
6	Course highlights the level of new knowledge	✓	✓			
7	The lecture was clear and easy to understand?	✓	✓			
8	Teaching aids are effectively used?	✓				
9	The resource person interacted well and cleared the doubts.		✓			
10	Overall organization of the course	✓				

Comments

1. we learn about stationary and non-stationary processes

2.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

SK. Mymunnisa

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback form

Course Name: ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS

Please place tick marks at the respective column

S.No	Particulars	Excellent	Very good	Good	Average	Poor
1	How well did you achieve this learning goal in this course?	✓				
2	The course contents meet the expectation		✓			
3	The lecture sequence was well planned		✓			
4	Lecture content illustrated with adequate examples	✓				
5	Level of the course up to the mark?	✓				
6	Course highlights the level of new knowledge		✓			
7	The lecture was clear and easy to understand?		✓			
8	Teaching aids are effectively used?	✓				
9	The resource person interacted well and cleared the doubts.	✓	✓			
10	Overall organization of the course		✓			

Comments

1. We discused about Queueing theory

2.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt)

V. Nandini

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com

web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback form

Course Name: ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS

Please place tick marks at the respective column

S.No	Particulars	Excellent	Very good	Good	Average	Poor
1	How well did you achieve this learning goal in this course?	✓				
2	The course contents meet the expectation	✓				
3	The lecture sequence was well planned	✓				
4	Lecture content illustrated with adequate examples		✓			
5	Level of the course up to the mark?		✓			
6	Course highlights the level of new knowledge		✓			
7	The lecture was clear and easy to understand?	✓				
8	Teaching aids are effectively used?	✓				
9	The resource person interacted well and cleared the doubts.	✓				
10	Overall organization of the course	✓				

Comments

1. we studied about advanced topics in Random Process.

2.

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

N. Monika

Phone No.
9121214708

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601, Palnadu Dist. A.P.
Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Feedback Analysis

Course Name: Advanced topics in probability and Random process

Number of students attended/ given feedback 123

S.No	Particulars	Excellent	Very good	Good	Average	Poor	levels
1	How well did you achieve this learning goal in this course?	78	25	15	3	2	0.85366
2	The course contain meet the expectation	78	25	10	7	3	0.84146
3	The lecture sequence was well planned	73	28	19	3		0.84756
4	Lecture content illustrated with adequate examples	72	29	17	3	2	0.8374
5	Level of the course up to the mark?	76	32	12	2	1	0.86585
6	Course highlights the level of new knowledge	75	32	8	4	4	0.84553
7	The lecture was clear and easy to understand?	70	28	17	6	2	0.82114
8	Teaching aids are effectively used?	74	24	22	2	1	0.84146
9	The resource person interacted well and cleared the doubts.	66	15	21	2	2	0.71748
10	Overall organization of the course	80	26	8	5	4	0.85163
							0.83232

Over all feedback value : 3.329268293

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Course Name: Advanced Topics in Probability and Random Process

Evaluation of the Value-Added Courses

Answer all the Questions Each Question Carry 1 Mark

Total Marks: 20M **Min Marks: 12 Marks**

Name of the Student **H.T.No:** **Marks obtained:**

1. What does Bayes' theorem describe?

A) Conditional probability B) Independence

C) Joint probability D) Marginal probability

2. What is the covariance of two independent random variables?

A) Always zero B) Always non-zero C) Sometimes zero D) Cannot be determined

3. Which process is memoryless?

A) Markov process **B) Poisson process** C) Gaussian process D) Renewal process

4. What does the Little's theorem relate in queuing theory?

A) Arrival rate and service rate B) Queue length and service rate

C) Arrival rate and queue length D) Service rate and queue length

5. What is the power spectral density of white noise?

A) Constant B) Increasing C) Decreasing D) Zero

6. Which theorem relates to renewal processes?

A) Bayes' theorem B) Little's theorem **C) Renewal theorem** D) Central limit theorem

7. What characterizes a Gaussian random process?

A) Non-stationary B) Non-Gaussian **C) Stationary** D) Memoryless

8. What is the primary application of queuing theory?

A) Signal processing B) Financial modelling C) Network analysis **D) All of the above**

9. What type of noise has a flat power spectral density?

A) Colored noise **B) White noise** C) Brownian noise D) Pink noise

10. What does the Z-transform primarily represent in digital signal processing?

A) Frequency response B) Time-domain signal **C) Discrete-time system** D) Phase shift

11. Which of the following is a stationary process?

PRINCIP
ESWAR COLLEGE O
NARASARAOPET-52

A) Random walk **B) White noise** C) Poisson process D) All of the above

12. Which distribution is associated with Poisson processes?

A) Normal distribution **B) Exponential distribution**

C) Uniform distribution D) Binomial distribution

13. What is the primary function of a digital controller in a control system?

A) Data storage B) Signal amplification **C) Feedback control** D) Power conversion

14. What does DSP stand for in the context of digital control systems?

A) Digital System Processor B) Discrete Signal Processing

C) Digital Signal Processor D) Digital System Protocol

15. Which of the following is a typical application of digital control systems?

A) Home lighting B) HVAC systems C) Robotics **D) All of the above**

16. What is the primary benefit of using digital filters in signal processing?

A) Improved signal quality B) Increased computational speed

C) Reduced system complexity D) Enhanced system durability

17. What is the primary role of microcontrollers in digital control systems?

A) Signal processing **B) Hardware interfacing**

C) System modelling D) Software development

18. Which type of digital filter is commonly used for smoothing data and reducing noise?

A) Low-pass filter B) High-pass filter C) Band-pass filter D) Notch filter

19. What is the primary disadvantage of using a low sampling rate in digital control systems?

A) Increased noise B) Reduced system bandwidth

C) Aliasing effects D) System instability

20. Which of the following represents the unit-step response of a stable digital control system?

A) Oscillatory B) Exponential decay **C) Straight line** D) Parabolic

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com

web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Course Name: Advanced Topics in Probability and Random Process

Evaluation of the Value-Added Courses

Key

Q.No	Answer	Q.No	Answer
1	A	11	A
2	A	12	B
3	B	13	C
4	C	14	C
5	A	15	D
6	C	16	A
7	C	17	B
8	D	18	A
9	B	19	C
10	C	20	C

(B. Bhavani)

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Course Name: Advanced Topics in Probability and Random Process

Evaluation of the Value-Added Courses

Answer all the Questions Each Question Carry 1 Mark

Total Marks: 20M **Min Marks: 12 Marks**

Name of the Student N. Monika **H.T.No:** 176J1A0452 **Marks obtained:** 13

1. What does Bayes' theorem describe?

A) Conditional probability B) Independence

C) Joint probability D) Marginal probability

2. What is the covariance of two independent random variables?

A) Always zero B) Always non-zero C) Sometimes zero D) Cannot be determined

3. Which process is memoryless?

A) Markov process B) Poisson process C) Gaussian process D) Renewal process

4. What does the Little's theorem relate in queuing theory?

A) Arrival rate and service rate B) Queue length and service rate

C) Arrival rate and queue length D) Service rate and queue length

5. What is the power spectral density of white noise?

A) Constant B) Increasing C) Decreasing D) Zero

6. Which theorem relates to renewal processes?

A) Bayes' theorem B) Little's theorem C) Renewal theorem D) Central limit theorem

7. What characterizes a Gaussian random process?

A) Non-stationary B) Non-Gaussian C) Stationary D) Memoryless

8. What is the primary application of queuing theory?

A) Signal processing B) Financial modelling C) Network analysis D) All of the above

9. What type of noise has a flat power spectral density?

A) Colored noise B) White noise C) Brownian noise D) Pink noise

10. What does the Z-transform primarily represent in digital signal processing?

A) Frequency response B) Time-domain signal C) Discrete-time system D) Phase shift

11. Which of the following is a stationary process?

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur

A) Random walk B) White noise C) Poisson process D) All of the above

12. Which distribution is associated with Poisson processes?

A) Normal distribution B) Exponential distribution

C) Uniform distribution D) Binomial distribution

13. What is the primary function of a digital controller in a control system?

A) Data storage B) Signal amplification C) Feedback control D) Power conversion

14. What does DSP stand for in the context of digital control systems?

A) Digital System Processor B) Discrete Signal Processing

C) Digital Signal Processor D) Digital System Protocol

15. Which of the following is a typical application of digital control systems?

A) Home lighting B) HVAC systems C) Robotics D) All of the above

16. What is the primary benefit of using digital filters in signal processing?

A) Improved signal quality B) Increased computational speed

C) Reduced system complexity D) Enhanced system durability

17. What is the primary role of microcontrollers in digital control systems?

A) Signal processing B) Hardware interfacing

C) System modelling D) Software development

18. Which type of digital filter is commonly used for smoothing data and reducing noise?

A) Low-pass filter B) High-pass filter C) Band-pass filter D) Notch filter

19. What is the primary disadvantage of using a low sampling rate in digital control systems?

A) Increased noise B) Reduced system bandwidth

C) Aliasing effects D) System instability

20. Which of the following represents the unit-step response of a stable digital control system?

A) Oscillatory B) Exponential decay C) Straight line D) Parabolic

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601. Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com

web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Course Name: Advanced Topics in Probability and Random Process

Evaluation of the Value-Added Courses

Answer all the Questions Each Question Carry 1 Mark

Total Marks: 20M **Min Marks: 12 Marks**

Name of the Student P. Anusha **H.T.No:** 21JF1A0407 **Marks obtained:** 18

1. What does Bayes' theorem describe?

A) Conditional probability B) Independence

C) Joint probability D) Marginal probability

2. What is the covariance of two independent random variables?

A) Always zero B) Always non-zero C) Sometimes zero D) Cannot be determined

3. Which process is memoryless?

A) Markov process B) Poisson process C) Gaussian process D) Renewal process

4. What does the Little's theorem relate in queuing theory?

A) Arrival rate and service rate B) Queue length and service rate

C) Arrival rate and queue length D) Service rate and queue length

5. What is the power spectral density of white noise?

A) Constant B) Increasing C) Decreasing D) Zero

6. Which theorem relates to renewal processes?

A) Bayes' theorem B) Little's theorem C) Renewal theorem D) Central limit theorem

7. What characterizes a Gaussian random process?

A) Non-stationary B) Non-Gaussian C) Stationary D) Memoryless

8. What is the primary application of queuing theory?

A) Signal processing B) Financial modelling C) Network analysis D) All of the above

9. What type of noise has a flat power spectral density?

A) Colored noise B) White noise C) Brownian noise D) Pink noise

10. What does the Z-transform primarily represent in digital signal processing?

A) Frequency response B) Time-domain signal C) Discrete-time system D) Phase shift

11. Which of the following is a stationary process?

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET, Guntur (Dt)

A) Random walk B) White noise C) Poisson process D) All of the above

12. Which distribution is associated with Poisson processes?

A) Normal distribution B) Exponential distribution

C) Uniform distribution D) Binomial distribution

13. What is the primary function of a digital controller in a control system?

A) Data storage B) Signal amplification C) Feedback control D) Power conversion

14. What does DSP stand for in the context of digital control systems?

A) Digital System Processor B) Discrete Signal Processing

C) Digital Signal Processor D) Digital System Protocol

15. Which of the following is a typical application of digital control systems?

A) Home lighting B) HVAC systems C) Robotics D) All of the above

16. What is the primary benefit of using digital filters in signal processing?

A) Improved signal quality B) Increased computational speed

C) Reduced system complexity D) Enhanced system durability

17. What is the primary role of microcontrollers in digital control systems?

A) Signal processing B) Hardware interfacing

C) System modelling D) Software development

18. Which type of digital filter is commonly used for smoothing data and reducing noise?

A) Low-pass filter B) High-pass filter C) Band-pass filter D) Notch filter

19. What is the primary disadvantage of using a low sampling rate in digital control systems?

A) Increased noise B) Reduced system bandwidth

C) Aliasing effects D) System instability

20. Which of the following represents the unit-step response of a stable digital control system?

A) Oscillatory B) Exponential decay C) Straight line D) Parabolic

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com

web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Marks sheet

1 Week Add-On Course on "ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESS"

Dates: 20-08-2018 to 25-08-2018

S.No.	HT.NO	Student Name	Marks
1	17JE1A0401	KOMARAGIRI ADILAKSHMI	12
2	17JE1A0402	KOTLA AKHILA	12
3	17JE1A0403	KANDIMALLA AMARESH	14
4	17JE1A0404	SHAIK AMEERJILANI	14
5	17JE1A0405	GODAVARTHI ANILKUMAR	12
6	17JE1A0406	AVULA ANIVI REDDY	12
7	17JE1A0407	PITTU ANUSHA	13
8	17JE1A0408	SHAIK APSAR	13
9	17JE1A0409	KASIMALLA ASHOK	13
10	17JE1A0410	KOPPURAVURI ASWINI	14
11	17JE1A0411	SHAIK AYESHA PARVEEN	14
12	17JE1A0412	SHAIK AZEEM	16
13	17JE1A0413	GERA BABU RAO	16
14	17JE1A0414	GORANTLA BALA KRISHNA	15
15	17JE1A0415	POTHULA BHARAT VENKAT SAI	15
16	17JE1A0416	BEJJANKI BHARGAV	15
17	17JE1A0417	GANESANA CHENNA REDDY	16
18	17JE1A0418	MYNENI CHINNI KRISHNA	14
19	17JE1A0419	JAJI CHIRANJEVI VENKATA SURYA NARAYANA	14
20	17JE1A0420	SHAIK DARIYAVALI	12
21	17JE1A0421	RAJAVARAPU DATTESWARI	13
22	17JE1A0422	PARCHURI DEVI BHAVANI	13
23	17JE1A0423	BATTULA DURGAPRASAD	14
24	17JE1A0424	PARIMI ELISHA	14
25	17JE1A0425	SYED FARZANA	13
26	17JE1A0426	SHAIK FARZANA	15

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

27	17JE1A0427	KORAMUTLA GANESH BABU	13
28	17JE1A0428	SHEIK GHOUSIYA	14
29	17JE1A0429	CHERUKULA GOPINADH REDDY	15
30	17JE1A0430	SHAIK GOUSE IMAM	15
31	17JE1A0431	SHAIK GOUSIYA	16
32	17JE1A0432	SHAIK HARI MOUNIKA	13
33	17JE1A0433	AMARESAM HARIKA	13
34	17JE1A0434	SAMANURI HEMANTH NAGA HARSHA VARDHAN RAJU	12
35	17JE1A0435	MEDARAMETLA HEMANTH SAI GOPI	12
36	17JE1A0436	CHINKA JAGADEESH	14
37	17JE1A0437	SYED JAKEER HUSSAIN	14
38	17JE1A0438	SHAIK JOHNYBASHA	13
39	17JE1A0439	VARIKUNTA KAMALI	16
40	17JE1A0440	GURRAM KANAKA DURGA	16
41	17JE1A0441	YAMALA KEERTHI REDDY	17
42	17JE1A0442	SYED KHALID MAHAMOOD	17
43	17JE1A0443	GADDE KIRAN	17
44	17JE1A0444	MOTUPALLI LAKSHMI THIRUPATHAMMA	14
45	17JE1A0445	PATHAN MAHABOOB BASHA	13
46	17JE1A0446	SHAIK MAHAMMAD RAJAK	13
47	17JE1A0447	SHAIK MAHAMMAD RIYAZ	12
48	17JE1A0448	KALYANAPU MANISUDHA	12
49	17JE1A0449	CHINTA MARUTHI	13
50	17JE1A0450	JANGA MEENAKSHI	13
51	17JE1A0451	MANCHELLA MEHAR MANASA	13
52	17JE1A0452	NUSAM MONIKA	13
53	17JE1A0453	SHAIK MYMUNNISA	12
54	17JE1A0454	ANNA NAGA VENKATA SAI MANIKANTA	12
55	17JE1A0455	PODILA NAGALAKSHMI	13
56	17JE1A0456	JAMMULA NAGANJANEYULU	13
57	17JE1A0457	SYED NAGUL MEERA	14
58	17JE1A0458	SHAIK NAGULMEERA	14
59	17JE1A0459	VIDADALA NANDINI	13
60	17JE1A0460	SONTHINENI NARENDRA	14
61	17JE1A0461	MANDALAPU NARENDRA	13
62	17JE1A0462	KOMMA NAVEEN KUMAR	13

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601. Guntur (Dt.)

63	17JE1A0463	SHAIK NAYEEM	12
64	17JE1A0464	SHAIK NAZMA	12
65	17JE1A0465	DONTHU PAVAN KALYAN	13
67	17JE1A0466	BATHULA PERISHA	14
68	17JE1A0467	SIKHAKOLLI PRAVALLIKA	14
69	17JE1A0468	MULE SAI PRAVALLIKA	13
69	17JE1A0469	BHUMIREDDY PUJITHA	12
70	17JE1A0470	SHAIK RABBANI	13
71	17JE1A0472	SHAIK RAHAMTULLA	12
72	17JE1A0473	MAHIPATHI RAJA KAVYA	13
73	17JE1A0474	KUMBA RAJESWARI	14
74	17JE1A0475	AKULA RAMA KRISHNA	14
75	17JE1A0476	RAMANJANEYARAJU SARIKONDA	14
76	17JE1A0477	THATI RANGANAYAKULU	17
77	17JE1A0478	SHAIK RIZWANA	17
78	17JE1A0480	SHAIK RUKSANA	14
79	17JE1A0481	EEGALAPATI SAI GANGA	12
80	17JE1A0482	DODDI SAI RAMESH	13
81	17JE1A0483	SHAIK SAIDA	12
82	17JE1A0484	SHAIK SAJID	13
83	17JE1A0485	SHAIK SAKHIYA PARVEEN	13
84	17JE1A0486	LAKKIREDDY SANDEEP	13
85	17JE1A0487	DUGGEMPUDI SANDEEP	14
86	17JE1A0488	BANDARUPALLI SANDEEP KUMAR	13
87	17JE1A0489	LINGALA SATISH	13
88	17JE1A0490	SHAIK SHAHEENA	14
89	17JE1A0491	SHAIK SHAREEF	13
90	17JE1A0492	SHAIK SHEEMA	15
91	17JE1A0493	BOYAPATI SIREESHA	15
92	17JE1A0494	DUDDEMPUDI SIVAGOPI	16
93	17JE1A0495	MALEY SRAVANA SANDHYA	17
94	17JE1A0496	JALAMUDI SRAVANI	13
95	17JE1A0497	MAGANTI SRI VIDYA	12
96	17JE1A0498	VELUTURLA SRIKANTH REDDY	12
97	17JE1A0499	SEELAM SRINIVASA RAO	13
98	17JE1A04A0	PATHAN SUBHANI	13
99	17JE1A04A1	MADDULA SURESH	12
100	17JE1A04A2	SHAIK TASLIMA NASRATH	12
101	17JE1A04A3	YEDLURI TEJASWINI	13

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

102	17JE1A04A4	ARIGELA TIRUMALA	13
103	17JE1A04A5	PASUPULETI TRIVENI	14
104	17JE1A04A6	GOLLA TULASI	14
105	17JE1A04A7	PUTTA USHARANI	13
106	17JE1A04A8	GELLI V L NAGA SAI PRASANTH	12
107	17JE1A04A9	ELIKA VANI	12
108	17JE1A04B0	DUMNE VEERAIAH	13
109	17JE1A04B1	PEDDAVARAPU VENKATA NARAYANAMMA	14
110	17JE1A04B2	POKALA VENKATA SIVAPRASAD	14
111	17JE1A04B3	MUSABOINA VENKATASAITEJA	13
112	17JE1A04B4	KONDA VENKATESH	14
113	17JE1A04B5	TIMMISETTI VENKATESWARA RAO	13
114	17JE1A04B6	NARABOINA VENKATRAO	13
115	17JE1A04B7	GANDHAM VIKRAM	12
116	17JE1A04B8	AKARAPU PAVAN KUMAR	14
117	17JE1A04B9	RUNJA THRIVENI	14
118	17JE1A04C0	PALAKEETI GOPICHAND	13
119	18JE5A0401	PAVAN KALYAN BHASKARA	13
120	18JE5A0402	CHALLAGUNDLA SAI KRISHNA	14
121	18JE5A0403	CHELIKANI SATYA NAVEEN	13
122	18JE5A0404	MUNAGA SRINIVASA RAO	13
123	18JE5A0405	GALI BRAMHARAO	12

Course Coordinator
B.BHAVANT

HOD-ECE
HOD

Principal
PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (Dt.)

ESWAR COLLEGE OF ENGINEERING: NARASARAOPET

Approved by AICTE, New Delhi., Affiliated to JNTUK, Kakinada
Kesanupalli Village, Narasaraopet – 522 601,
Palnadu Dist. A.P.

Phone No. 9121214708 | Email ID: principal@eswarcollegeofengg.org, eswarcollegeofengg@gmail.com
web:eswarcollegeofengg.org

Department of Electronics and Communication Engineering

Summary of the Program

Course Name: Advanced Topics in Probability and Random Process

The Department of Electronics and Communication Engineering (ECE) at Eswar College of Engineering, Narasaraopet, organized a one-week value-added course on Advanced Topics in Probability and Random Process from August 29, 2022, to September 3, 2022. The course was attended by 123 students from II B.Tech I Sem ECE-A and B.

Evaluation Criteria for Certification:

- Marks: Students were required to secure a minimum of 60% marks in the evaluation.
- Attendance: A minimum of 80% attendance was mandatory for certification.

Objective of the Course:

- To provide students with an advanced understanding of probability theory, including conditional probability, independence, and multivariate distributions.
- To familiarize students with various stochastic processes, such as Markov chains, Poisson processes, and Gaussian processes, emphasizing their properties and applications.
- To enable students to analyze and model real-world phenomena using advanced probability and random process theories, particularly in the fields of engineering, finance, and data science.
- To equip students with the analytical skills and tools required to solve complex problems related to queuing theory, random signals, noise, and other advanced topics in probability and random processes.
- .

Course Delivery Method:

- The course consisted of lectures, and practical sessions, conducted by **SK Farmanulla**, an experienced faculty member from the Department of ECE.
- Interactive sessions encouraged active participation and engagement from the students to ensure effective learning and understanding of the concepts.

Benefits for Students:

- **Enhanced Knowledge:** Students will gain a deeper understanding of advanced probabili and random processes, enhancing their expertise in the field of mathematics and applications in various domains.
- **Career Opportunities:** With specialized knowledge in probability theory and rando processes, students can explore diverse career paths in industries such as finance, data scien engineering, and research.

PRINCIPAL
ESWAR COLLEGE OF ENGINEE
NARASARAOPET-522 601. Guntur

- **Analytical Skills Development:** The course will help students develop strong analytical and problem-solving skills, enabling them to tackle complex challenges and make informed decisions based on probabilistic and statistical principles.
- **Research and Innovation:** Students will be better equipped to engage in research activities, contribute to academic advancements, and innovate solutions to real-world problems using advanced probability and random process theories.

In conclusion, the "Advanced Topics in Probability and Random Process" program equips students with a deep understanding of complex probabilistic theories and their practical applications across various industries. Through rigorous coursework and hands-on learning, students develop essential analytical skills, enhancing their career prospects and paving the way for academic research and innovation. This comprehensive program not only fosters intellectual growth but also positions students at the forefront of quantitative analysis, preparing them to excel in today's data-driven world.

Faculty Coordinator

HOD-ECE

Principal

PRINCIPAL
ESWAR COLLEGE OF ENGINEERING
NARASARAOPET-522 601, Guntur (DL)