COURSE FILE

ON
COMPUTER ORIENTED STATISTICAL METHODS

Course Code - MA303BS
II B. Tech I-SEMESTER

A.Y.: 2022-2023

Prepared by

Mrs. B. RAMA DEVI

Assistant Professor

B. Rama Karul
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-551 10.

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Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501 510.

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Affiliated to JNTUH, Hyderabad.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year	2022-2023
Course Title	COMPUTER ORIENTED STATISTICAL METHODS
Course Code	MA303BS
Programme	B.Tech
Year & Semester	II year I-semester
Branch & Section	CSE-A
Regulation	R18
Course Faculty	Mrs. B. RAMA DEVI, Assistant Professor

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Main Road, Sheriguda, Ibrahimpatnam, R.R. Dist. 501 510.
Campus Ph:9640590999, 9347187999, 8096951507.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INSTITUTE VISION AND MISSION

Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

Mission:

IM1: To offer outcome-based education and enhancement of technical and practical skills.

IM2: To continuous assess of teaching-learning process through institute-industry

collaboration.

IM3: To be a center of excellence for innovative and emerging fields in technology

development with state-of-art facilities to faculty and students fraternity.

IM4: To create an enterprising environment to ensure culture, ethics and social responsibility

among the stakeholders

B. Rahra Kaul
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 1C.

PRINCIPAL
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Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501 510.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT VISION AND MISSION

Vision:

To become a prominent knowledge hub for learners, strive for educational excellence with innovative and industrial techniques so as to meet the global needs.

Mission:

DM1 : To provide ambience that enhances innovations, problem solving skills, leadership qualities, decision making, team-spirit and ethical responsibilities.

DM2 : To impart quality education with professional and personal ethics, so as to meet the challenging technological needs of the industry and society.

DM3 : To provide academic infrastructure and develop linkage with the world class organizations to strengthen industry-academia relationships for learners.

DM4 : To provide and strengthen new concepts of research in the thrust area of Computer Science and Engineering to reach the needs of Government and Society.

B. Ratna Kaul
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 10.

PRINCIPAL
Sri Indu Institute of Engineering & Tech.
Sheriguda(Vill), Ibrahimpatnam
R.R. Dist. Telangana-501 510.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To develop trained graduates with strong academic and technical skills of modern computer science and engineering.

PEO2: To promote trained graduates with leadership qualities and the ability to solve real time problems using current techniques and tools in interdisciplinary environment.

PEO3: To motivate the graduates towards lifelong learning through continuing education and professional development.

PROGRAM SPECIFIC OUTCOMES

PSO1: **Professional Skills:** To implement computer programs of varying complexity in the areas related to Web Design, Cloud Computing, Network Security and Artificial Intelligence.

PSO2: **Problem-Solving Skills**: To develop quality products using open ended programming environment.

B. Rahia Kaul
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 10.

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PROGRAMME OUTCOMES (POs)

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech. in COMPUTER SCIENCE AND ENGINEERING
COURSE STRUCTURE & SYLLABUS (R18)

Applicable From 2018-19 Admitted Batch

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS301ES	Analog digital electronics	3	0	0	3
2	CS302PC	Data Structures	3	1	0	4
3	MA303BS	Computer Oriented Statistical Methods	3	1	0	4
4	CS304PC	Computer Organization and Architecture	3	0	0	3
5	CS305PC	Object Oriented Programming using C++	2	0	0	2
6	CS306ES	Analog and Digital Electronics Lab	0	0	2	1
7	CS307PC	Data Structures Lab	0	0	3	1.5
8	CS308PC	IT Workshop Lab	0	0	3	1.5
9	CS309PC	C++ Programming Lab	0	0	2	1
10	*MC309	Gender Sensitization Lab	0	0	2	0
		Total Credits	**15**	**1**	**12**	**21**

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	CS401PC	Discrete Mathematics	3	0	0	3
2	SM402MS	Business Economics & Financial Analysis	3	0	0	3
3	CS403PC	Operating Systems	3	0	0	3
4	CS404PC	Database Management Systems	3	1	0	4
5	CS405PC	Java Programming	3	1	0	4
6	CS406PC	Operating Systems Lab	0	0	3	1.5
7	CS407PC	Database Management Systems Lab	0	0	3	1.5
8	CS408PC	Java Programming Lab	0	0	2	1
9	*MC409	Constitution of India	3	0	0	0
		Total Credits	**18**	**2**	**8**	**21**

Department of Computer Science and Engineering

Course Outcomes

After completing this course, the student will be able to:

C213.1: Define the conditional probability and state the Bayes' theorem and solve its

applications **(Remembering)**

C213.2: solve the problems on random variables and compare the difference between

probability distributions **(Evaluating)**

C213.3: construct the area of normal curve and distinguish Binomial **(Creating)**

C213.4: Examine the sampling distribution of means and sampling distribution of

variances **(Analyzing)**

C213.5: classify the methods of estimations and errors of estimations **(Understanding)**

C213.6: identify the test of hypothesis for single mean, proportion and difference

Between the means, proportions and learn the concept of Markov process

and different types of states. **(Applying)**

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Mapping of course outcomes with program outcome

CO's Mapping with PO/PS Mapping of course outcomes with program outcomes:

High -3   Medium -   Low-1

PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C213.1	3	2	-	1	1	-	-	-	-	-	-	1
C213.2	3	2	-	1	1	-	-	-	-	-	-	1
C213.3	2	2	-	1	1	-	-	-	-	-	-	1
C213.4	2	3	-	1	1	-	-	-	-	-	-	2
C213.5	3	2	-	1	1	-	-	-	-	-	-	2
C213.6	3	2	-	1	1	-	-	-	-	-	-	2
C213	2.6	2.16	-	1	1	-	-	-	-	-	-	1.5

CO-PO mapping Justification

PO1.   ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals ,and an engineering specialization to the solution of complex engineering problems.

PO2.PROBLEM ANALYSIS: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences,and engineering sciences.

PO4.CONDUCTINVESTIGATIONSOF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data ,and synthesis of the information to provide valid conclusions.

PO5. MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO12. LIFE-LONG LEARNING: Recognize the need for, and have the preparation and ability to engineering dependent and life-long learning in the broadest context of technological change.

C213.1: Define the conditional probability and state the Bayes' theorem and solve it's applications **(Remembering)**

	Justification
PO1	Student get the knowledge on probability theorems and basic concepts in probability (level 2)
PO2	Student can solve the problems on conditionally probability and apply Bayes' theorem (level 2)
PO4	Student has a ability to develop problem solving skills (level 2)
PO12	Student can recognize and compare probability problems in real life situations (level 2)

C213.2: solve the problems on random variables and compare the difference between probability distributions (**Evaluating**)

	Justification
PO1	Student get the knowledge of random variable concept and types of probability distributions (level 3)
PO2	Student can differentiate the formulas in 3 types of probability distributions (level 3)
PO4	Student can use knowledge of probability distributions (level 1)
PO12	Student can recognize and compare probability distribution *concepts* in real life situations (level 2)

C213.3: construct the area of normal curve and distinguish Binomial **(Creating)**

	Justification
PO1	Student get the knowledge of to draw normal curve for the given data(level 2)
PO 2	Student can differentiate the normal curves in different types of distributions (level 3)
PO4	Student has a ability to develop problem solving skills and draw the curves(level 3)
PO12	Student can recognize and compare probability distribution and normal curve concepts in real life situations(level 3)

C213.4: Examine the sampling distribution of means and sampling distribution of variances
(Analyzing)

	Justification
PO1	Student get the knowledge of sampling theory and different methods in sampling(level 2)
PO2	Student compare the concept of sampling distribution of means and sampling distribution of variances (level 2)
PO4	Student can use techniques of sampling distributions(level 1)
PO12	Student can recognize and apply sampling distribution concepts in real life situations(level 3)

C213.5 : Classify the methods of estimations and errors of estimations
(Understanding)

	Justification
PO1	Student get the knowledge in estimations and sampling errors(level 2)
PO2	Student can solve the problems in maximum error of estimation (level 2)
PO4	Student has a ability to develop problem solving skills in estimations(level 2)
PO12	Student can give examples for estimations comparing with real life situations (level 2)

C213. 6 : Identify the test of hypothesis for single mean, proportion and difference

Between the means, proportions and learn the concept of Markov process and different

types of states.**(Applying)**

	Justification
PO1	Student get the knowledge of hypothesis and stochastic process concepts (level 3)
PO2	Student can differentiate single mean and difference of means in hypothesis (level 3)
PO4	Student can analyze single mean and difference of mean and stochastic and Markov chain (level 1)
PO12	Student can give examples of means and proportions with real life situations (level 3)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

ACADEMIC CALENDAR 2022-23

B. Tech./B.Pharm. II YEAR I & II SEMESTERS

I SEM

S. No	Description	Duration	
		From	**To**
1	Commencement of I Semester classwork	**28.11.2022**	
2	1st Spell of Instructions	28.11.2022	21.01.2023 (8 Weeks)
3	First Mid Term Examinations	23.01.2023	30.01.2023 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	04.02.2023	
5	2nd Spell of Instructions	31.01.2023	29.03.2023 (8 Weeks)
6	Second Mid Term Examinations	31.03.2023	08.04.2023 (1 Week)
7	Preparation Holidays and Practical Examinations	10.04.2023	15.04.2023 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	15.04.2023	
9	End Semester Examinations	17.04.2023	29.04.2023 (2 Weeks)

Note: No. of Working / Instructional Days: 93

II SEM

S. No	Description	Duration	
		From	**To**
1	Commencement of II Semester classwork	**01.05.2023**	
2	1st Spell of Instructions (including Summer Vacation)	01.05.2023	08.07.2023 (10 Weeks)
3	**Summer Vacation**	15.05.2023	27.05.2023 (2 Weeks)
4	First Mid Term Examinations	10.07.2023	15.07.2023 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	22.07.2023	
6	2nd Spell of Instructions	18.07.2023	11.09.2023 (8 Weeks)
7	Second Mid Term Examinations	12.09.2023	16.09.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	19.09.2023	23.09.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	23.09.2023	
10	End Semester Examinations	25.09.2023	07.10.2023 (2 Weeks)

Note: No. of Working / Instructional Days: 92

24/11/22

REGISTRAR

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TIME TABLE FOR A.Y 2022-23

Class: II-B. Tech CSE -A   **Semester: I**   **LH. NO: A-301**   **W.E.F:28-11-2022**

Period/ Day	1	2	3	4	1:00-1:30	5	6	7
	9:40-10:30	10:30-11:20	11:20-12:10	12:10-1:00		1:30-2:20	2:20-3:10	3:10-4:00
Monday	COSM	ITWS LAB(BATCH-I)/ A&DE LAB(BATCH-II)			L U N C H	A&DE	DS	C++
Tuesday	COSM	C++	COA	DS		A&DE	CO-C/SS/DAA	
Wednesday	C++	COSM	INT	COA		DS LAB(BATCH-I)/ C++ LAB(BATCH-II)		
Thursday	DS	GS LAB		COSM/DS(T)		C++	A&DE	SPORTS
Friday	COA	DS LAB(BATCH-II)/ C++ LAB(BATCH-I)				A&DE	LIB	DS/COSM(T)
Saturday	C++	DS	COUN	COA		ITWS LAB(BATCH-II)/ A&DE LAB(BATCH-I)		

(T) – Tutorial (concern faculty)

Subject Code	Subject Name	Name of the Faculty	Subject Code	Subject Name	Name of the Faculty
CS301ES	Analog and Digital Electronics	Mrs. S.Alekhya	CS309PC	C++ Programming Lab	Mrs P H Swarna Rekha/ Mrs.P.Souwjanya/ Mrs.G.Swapna
CS302PC	Data Structures	Mrs. D.Rajeshwari	MC309	Gender Sensitization Lab	Mrs S Swapna
MA303BS	Computer Oriented Statistical Methods	Mrs. B.Ramadevi		CO-C/SS/DAA	Mrs. D.Rajeshwari
CS304PC	Computer Organization and Architecture	Dr. Sasikumar D	Sports	Sports	Mr K Veera Kishore
CS305PC	Object Oriented Programming Using C++	Mrs P H Swarna Rekha	Internet	Internet	Mrs. Ch Sai Vijaya
CS306ES	Analog and Digital Electronics Lab	Mrs. S.Alekhya	LIB	Library	Mrs P H Swarna Rekha
CS307PC	Data Structures Lab	Mrs. D.Rajeshwari/ Mrs D.Uma/ Mrs.A.Sudha	COUN	Counselling	Mrs.R.Sravanthi
CS308PC	IT Workshop Lab	Mrs T Ramya Priya/ Mrs.Ch.Sai Vijaya/ Mrs. Jakkala Priyanka			

Class In-Charge : Mrs. D.Rajeshwari   Mentor 1 : Mrs. D.Rajeshwari   Mentor 2: Mrs P H Swarna Rekha

Class In-Charge

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Sherig...

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PRINCIPAL
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Sheriguda (Vill), Ibrahimpatnam
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LESSON PLAN

Course Title	Computer Oriented Statistical Methods
Course Code	MA303BS
Programme	B.Tech
Year & Semester	II-year I-semester
Regulation	R18
Course Faculty	Mrs. B. Ramadevi, Assistant Professor , H&S

	Topic	Teaching Method/Teaching Aid	No.of Sessions Planned	Reference book/Text book
1	Unit wise Introduction of Computer Oriented Statistical Methods Syllabus	Black board	1	R-1
2	**UNIT –I Probability and Random variables** Introduction of Probability, sample space, events	Black board	1	R-1
3	Additive rules in Probability	Black board	1	R-1
4	Problems on Probability	Black board	1	R-1
5	Product rules in Probability	Black board	1	R-1
6	Conditional Probability Problems	Black board	1	R-1
7	Bayer's theorem proof	Black board	1	T-1,T-2
8	Problems on conditional probability & Bayer's theorem	Black board	1	R-1
9	Random variables and types of random variables	Black board	1	R-1
10	Problems on Random variables	Black board	1	R-1
11	Discrete and Continuous Distributions and their problems	Black board	1	R-1
12	Problems on discrete and continuous Random variables	Black board	1	R-1
	UNIT – II Mathematical expectation and Discrete probability distribution			
13	Mean, variance, standard deviation of discrete random variables	Black board	1	T-1
14	Problems	Black board	1	
15	Mean, variance, standard deviation, median Mode and mean deviation of continuous random variables	Black board	1	R-1,T-1
16	Problems	Black board		T-1

17	Means and variances of linear combination of random variables	Black board	1	T-1
18	Chebyshev's theorem - problems	Black board	1	R-1
19	Binomial distribution and it's parameters	Black board	1	T-1
20	Problems on Binomial distribution	Black board	1	T-1
21	Poisson distribution and it's parameters	Black board	1	R-1
22	Problems on Poisson distribution	Black board	1	R-1
	UNIT –III **Continuous Probability distributions and sampling distributions**			
23	Continuous uniform distribution	Black board	1	R-1
24	Normal distribution -Parameters			R-1
25	Areas under normal curve - Formulas	Black board	1	R-1
26	Problems on areas under normal curve	Black board	1	R-1
27	Applications of Normal distribution	Black board	1	R-1
28	Normal approximation to the Binomial distribution	Black board	1	T-1
29	Gamma and Exponential distribution	Black board	1	T-1
30	Random sampling definitions	Black board	1	T-3
31	Statistics and parameters	Black board	1	T-1
32	Sampling distributions, Central limit theorem	Black board	1	T-3
33	Sampling distribution of means -problems	Black board	1	T-1
34	Sampling distribution of variances-problems	Black board	1	T-2
35	t-distribution and F-distribution	Black board	1	T-2
36	**UNIT –IV** **Estimation and Test of hypothesis, Statistical hypothesis**		1	T-1
37	Classical methods of estimation	Black board	1	R-1
38	Estimating the mean , standard error of point estimation, Test of hypothesis	Black board	1	R-1
39	Prediction intervals and tolerance intervals	Black board	1	R-1,T-1
40	Estimating single mean - problems	Black board	1	R-1
41	Estimating difference between	Black board	1	R-1

	means - problems				
42	Estimating single proportion - problems	Black board	1		R-1,T-1
43	Estimating difference between two proportions - problems	Black board	1		R-1,T-1
44	**UNIT-V** **Stochastic Process and** **Markov Chains**		1		
45	Introduction to Stochastic process	Black board	1		R-1,T-1
46	Markov process and Markov chain	Black board	1		R-1,T-1
47	Transition probability matrix - problems	Black board	1		R-1,T-1
48	First order and higher order Markov process	Black board	1		R-1,T-1
49	n-step transition probabilities Markov analysis	Black board	1		R-1,T-1

REFERENCE BOOKS:
1. T.T. Soong, Fundamentals of Probability and Statistics for Engineers, John Wiley & Sons Ltd,2004
2. Sheldon M Ross. Probability and Statistics for Engineers and Scientists, Academic Press

TEXT BOOKS:
1. Ronald E. Walpole. Raymond H. Mayer's, Sharon L. Myers, Keying Ye, Probability & Statistics for Engineers & Scientists,9th Ed. Pearson Publishers
2. S C Gupta and V K Kapoor, Fundamentals of Mathematical statistics, Khanna publications.
3. S.D. Sharma, Operations Research, Kedarnath and Ramnath Publishers, Meerut, Delhi

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WEB REFERENCES

Web link 1 : https://www.scribbr.com/statistics/normal-distribution/#:~:text=In%20a%20normal%20distribution%2C%20data%20are%20symmetrically%20distributed%20with%20no,same%20in%20a%20normal%20distribution

Web link 2 :
https://stats.libretexts.org/Bookshelves/Introductory_Statistics/Introductory_Statistics_(Shafer_and_Zhang)/08%3A_Testing_Hypotheses/8.04%3A_Small_Sample_Tests_for_a_Population_Mean

Web link 3 : https://sixsigmastudyguide.com/point-and-interval-estimation/

COSM LECTURENOTES

UNIT-I

https://drive.google.com/file/d/1KOzuM_Apc1pc_CR7y2Jnd_lKhYGF_oPr/view?usp=sharing

UNIT-II

https://drive.google.com/file/d/1c5oq3vwkcHZ173KCAR-PWnwf4gweZC07/view?usp=sharing

UNIT-III

https://drive.google.com/file/d/114afnfaC0dgIbkb9yJMEM9ow_U9b3V15/view?usp=sharing

UNIT-IV

https://drive.google.com/file/d/1FGP36Mouwp1R4-bQB0luncSVS2ua2Yzc/view?usp=sharing

UNIT-V

https://docs.google.com/document/d/1SZreCs00LTs-
DW2s6ZSUtlIWGWnMRWh8/edit?usp=sharing&ouid=110590663377107612568&rtpof=true&sd=true

List of Power point presentations

https://docs.google.com/presentation/d/14q5HO3OVDSZgm7gt-

L1_9J56T7E29eZO/edit?usp=sharing&ouid=100250344265646667814&rtpof=true&sd=true
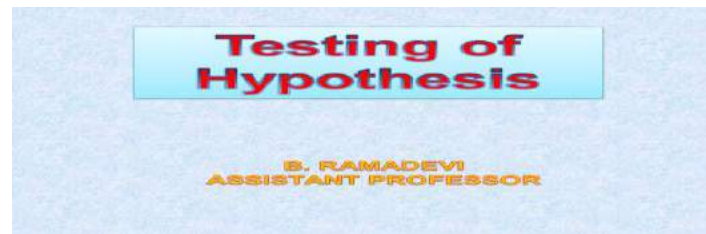
https://docs.google.com/presentation/d/1rlcjSYyPufruFtOFJqIHEtEjsck-

n25_/edit?usp=sharing&ouid=100250344265646667814&rtpof=true&sd=true

PREVIOUS QUESTION PAPER

Code No: 153AJ

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, March - 2021
COMPUTER ORIENTED STATISTICAL METHODS
(Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks
- - -

1. Two dice are thrown the random variable is assigned to the sum. Write the distribution. Find the mean and variance. [15]

2.a) If the probability distribution function of a continuous random variable is $ke^{|x|}, -\alpha \le x \le \alpha$. Find i) k   ii) mean   iii) variance.
   b) A sample of 4 items is selected from 12 out of which 5 are defective. Find the expected number of defective items. [8+7]

3.a) Eight coins are tossed. Find the probability of getting heads: i) $p(x=3)$ ii) $p(x \le 4)$.
   b) The probabilities of a Poisson variate taking the values 1 and 2 are equal. Calculate:
   i) $p(x=0)$ ii) $p(x=3)$ [7+8]

4.a) Mean heights of students is 159cms with a standard deviation of 20. Find how many students heights lie between 150cms and 170cms in a class of 100 students.
   b) The expected number of typographical errors on a page of a certain magazine is 0.2. What is the probability that the next page you read contains i) 0 and ii) 2 or more typographical errors? [7+8]

5. From the following data find whether there is any significant liking in the habit of taking soft drinks among the categories of employees. [15]

Soft drinks	Employees		
	Clerks	Teachers	Officers
Pepsi	10	25	65
Thumsup	15	30	65
Maaza	50	60	30

6. Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results. Test whether two horses have the same running capacity.

Horse A	28	30	32	33	33	29	34
Horse B	29	30	30	24	27	29	-

[15]

Code No: 153AJ

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year I Semester Examinations, December - 2019
COMPUTER ORIENTED STATISTICAL METHODS
(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a) Define distribution function of a random variable. [2]
 b) Derive mean of Geometric distribution [2]
 c) Define Gamma distribution [2]
 d) Define Tolerance limit [2]
 e) What is a stochastic matrix? When is it said to be regular? [2]
 f) If $f(x) = \begin{cases} K(3x^2 - 1) & 0 \le x \le 2 \\ 0 & elsewhere \end{cases}$ is the p.d.f of a continuous random variable X, find K.

[3]
 g) Define expected value and variance of a random variable [3]
 h) Define i) simple sample   ii) random sample   iii) purposive sample. [3]
 i) A sample of size 80 is taken from a population whose S.D is 15. Find the standard error of means. [3]
 j) If the transition probability matrix is $\begin{bmatrix} 0 & 0.2 & x \\ x & 0.1 & y \\ 0.1 & 0.2 & z \end{bmatrix}$. Find x, y and z. [3]

PART – B

(50 Marks)

2.a) If P(A) = 2/3, P(B) = 1/5, prove that $\frac{2}{15} \le P(A \cap B) \le \frac{1}{5}$.
 b) Let $f(x) = 3x^2$, when $0 \le x \le 1$ be the probability density function of a continuous random variable X. Determine a and b such that
  i) P(X≤a) = P(X>a)   ii) P(X>b) = 0.05. [5+5]

OR

3.a) Two digits are selected at random from the digits 1 through 9.
  i) If the sum is odd, what is the probability that 2 is one of the digit selected.
  ii) If 2 is one of the digits selected, what is the probability that the sum is odd?
 b) Three machines produce the items 30%, 30% and 40% of the total product. If 2%, 3% and 4% are defective from three machines products. One item is selected and found to be defective. Find the probability that it is from i) Machine I ii) Machine II iii) Machine III. [5+5]

4.a) Prove that Poisson distribution is the limiting case of Binomial distribution.
  b) A manufacturer of pins knows that 2% of his product is defective. If he sells pins in boxes of 100 and guarantees that not more than 4 pins will be defective. What is the probability that a box will fail to meet the guaranteed quality?   [5+5]

OR

5.a) Ten coins are tossed. Find the probability of getting greater than or equal to 6 heads.
  b) Find the probability of 5 or more telephone calls arriving in a 9-minute period in a college switchboard, if the telephone calls that are received at the rate of 2 every 3 minutes following Poisson distribution.   [5+5]

6.a) The mean voltage of a battery is 15 and standard deviation 0.2. Find the probability that four such batteries connected in series will have a combined voltage of 60.8 or more volts.
  b) The weight of 10 samples are (in gms) 22, 25, 12, 15, 17, 19, 10, 18, 19, 23. Test whether these had been drawn from a population with mean 20. Test at 5% level.   [5+5]

OR

7. Two horses A and B were tested according to the time (in seconds) to run a particular track with the following results.

Horse A	28	30	32	33	33	29	34
Horse B	29	30	30	24	27	29	-

Test whether the two horses have the same capacity of running?   [10]

8.a) Construct 95% confidence interval for the true proportion of computer literates if 47 out of 150 persons from rural areas are computer literates.
  b) In a certain city 125 men in a sample of 500 were found to be smokers. In another city, the number of smokers was 375 in a random sample of 1000. Does this indicate that there is a greater population of smokers in the second city than in the first?   [5+5]

OR

9.a) A sample of size 9 was taken from a population gave $s^2 = 10.9, \bar{x} = 15.8$. Obtain the 99% confidence interval for μ.
  b) The owner of a machine shop must decide which of two snack vending machines to install in his shop. If each is tested 250 times, the first machine fails to work 13 times and the second machine fails to work 7 times. Test at the 0.05 level of significance whether the difference between the corresponding sample proportions is significant.   [5+5]

10. Three boys A, B, C are throwing a ball to each other. B always throws the ball to C; C always throws the ball to A; but A is just a likely to throw the ball to C as to B. Show that the process is Markovian. Find the transition matrix and classify the states. Do all the states are ergodic?   [10]

OR

11.a) A fair die is tossed repeatedly. If X_n denotes the maximum of the number occurring in the first n tosses, find the transition probability matrix P of the Markov chain $\{X_n\}$. find also P^2.
  b) The transition probability matrix of a Markov chain is given by $\begin{bmatrix} 0.3 & 0.7 & 0 \\ 0.1 & 0.4 & 0.5 \\ 0 & 0.2 & 0.8 \end{bmatrix}$. Is this matrix irreducible?   [5+5]

---ooOoo---

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year I Semester Examinations, October - 2020
COMPUTER ORIENTED STATISTICAL METHODS
(Common to CSE, IT)

Time: 2 hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks
- - -

1.a) State Baye's theorem. Two factories produce identical clocks. The production of the first factory consists of 10,000 clocks of which 100 are defective. The second factory produces 20,000 clocks of which 300 are defective. What is the probability that a particular defective clock was produced in the first factory?

b) Given $f(x) = \begin{cases} ax^2, & for\ 0 < x < 1 \\ 0, & elsewhere \end{cases}$

Find the constant Also find distribution function F(x), mean and variance of X.   [8+7]

2.a) If A and B are any two events (subsets of the sample space S) and are not disjoint, then prove that $P(A \cup B) = P(A) + P(B) - P(A \cap B)$.

b) If two dice are thrown, what is the probability that the sum is (i) greater than 8, and (ii) neither 7 nor 11 ?   [8+7]

3.a) State and prove Chebyshev's Theorem.

b) Show that in a Poisson distribution with unit mean, the mean deviation about the mean is $2/e$ times the standard deviation.   [8+7]

4.a) Derive the mean and variance of Poisson distribution.

b) The incidence of occupational diseases in an industry is such that the workmen have a 10% chance of suffering from it. What is the probability that in a group of 7, five or more will suffer from it?   [8+7]

5.a) Explain normal distribution. If X is normally distributed with mean 1 and standard deviation 0.6, obtain $P(x > 0)$ and $P(-1.8 \leq X \leq 2.0)$.

b) Ten individuals are chosen at random from a normal population and their heights are found to be 63, 63,66,67,68, 69, 70, 70, 71, 71 inches. Test if the sample belongs to the population whose mean height is 66 inches.   [7+8]

6.a) Explain exponential distribution and show that exponential distribution tends to normal distribution for large values of the parameter λ.

b) A random sample of 16 values from a normal population has a mean of 41.5 inches and sum of squares of deviations from the mean is equal to 135 inches. Another sample of 20 values from an unknown population has a mean of 43.0 inches and sum of squares of deviations from their mean is equal to 171 inches. Show that the two samples may be regarded as coming from the same normal population.   [7+8]

7.a) A manufacturer claimed that at least 98% of the steel pipes which he supplied to a factory conformed to specifications. An examination of a sample of 500 pieces of pipes revealed that 30 were defective. Test this claim at a significance level of 0.05.

b) A machine puts out 16 imperfect articles in a sample 500. After machine is overhauled, it puts out 3 imperfect articles in a batch of 100. Has the machine improved? Test at 5% level of significance. [7+8]

8.a) Define Markov chain and classify its states.

b) Suppose there are two market products of brand A and B, respectively. Let each of these two brands have exactly 50% the total market in same period and let the market be of a fixed size. The transition matrix is given as follows:

		To	
		A	B
From	A	0.9	0.1
	B	0.5	0.5

If the initial market share breakdown is 50% for each brand, then determine their market shares in the steady state. [7+8]

---ooOoo---

PQP

I - Mid Examinations, JAN-2023

Year &Branch: III CSE (A,B,C),CSE(CS), CSE(IOT)   Date:23/01/2023

Subject: COSM   Max. Marks: 10   Time: 60 mins

Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks

1 . State and prove Baye's theorem.   **(C213.1) (Applying)**

2. A random variable X has the following distribution

x	0	1	2	3	4	5	6	7
P(x)	0	k	2k	2k	3k	K^2	$2k^2$	$7k^2+k$

Determine i) k   ii) P(X<6) iii) P(X≥6) iv) P(0<X<5) **(C213.1)**   **(Analysis)**

3. The probability density function of continuous random variable X is

$$f(x) = \frac{1}{2}\sin x \text{ for } 0 \leq x \leq \pi, \text{ otherwise } 0;$$

Find Mean,Median and Mode of the distribution and also find the probability between 0 and π/2
          (C213.2) (Evaluation)

4. a) The mean and variance of Binomial distribution is 4 and 4/3. Find P(X≥1) **(C213.2) (Evaluation)**

   b) A fair coin is tossed 6 times then find the probability of getting 4 heads. **(C213.2) (Evaluation)**

Question Paper Mapping with BT

Question Paper Mapping with CO's
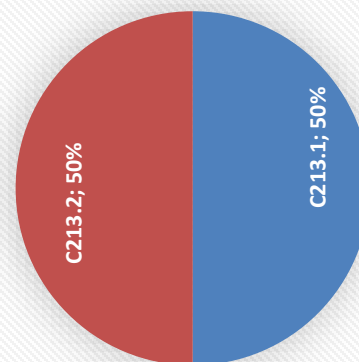
SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Sheriguda (V), Ibrahimpatnam (M), R.R. Dist-501 510   **Set – II**

II - Mid Examinations, March -2023

Year &Branch: II CSE (A, B, C), CSE(CS), CSE(IOT)   Date: 31-03-2023 (FN)

Subject: COSM   Max. Marks: 10   Time: 60mins

Answer any **TWO** Questions. All Question Carry Equal Marks   2*5=10 marks

1 . In a normal distribution 7% of the items are under 35 and 89% of the items are under63.Determine mean and variance of the distribution (**C213.3) (Applying)**

2 The marks obtained in mathematics by 1000 students is normally distributed with mean 78% and standard deviation 11%.

    i)How many students got marks above 90%

    ii)What was the highest marks obtained by the lowest 10% of the students

    iii)Within what limits did the middle of 90% of the students lie.

          (C213.4) (Analysis)

3. A random sample of 400 items found to have mean 82 and standard deviation 18. Find the Maximum error of estimation at 95% confidence interval. Find the confidence limits for mean. **(C213.5) (Evaluations)**

4. 3 boys A, B, C are throwing a ball to each other. A always throws the ball to B and B always throws the ball to C but C just as likely to B as to A. Show that the process is Markov process, find the transition probability matrix and classify the states and also check the matrix is Ergodic or not? **(C213.6) (Creating)**

MID 1 KEY:

https://drive.google.com/file/d/1-_yMlApmLVoymY5bX1GmPxnfpwE2qdQ5/view?usp=sharing

MID 2 KEY:

https://drive.google.com/file/d/16QI7q8DBr0r7z1OiFbbbqWE8HrrayxY5/view?usp=sharing
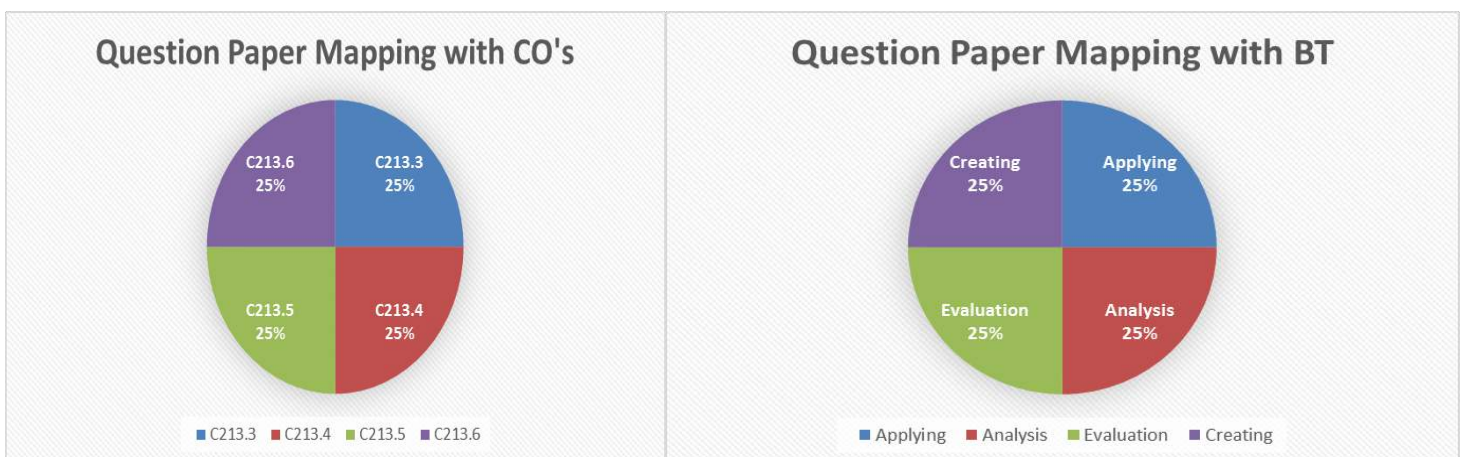
ASSIGNMENT QUESTIONS

1 . State and prove Baye's theorem.

2 . In a bolt factory machines A,B,C manufactures 20%,30% and 50% of the total of their output and 6%, 3% and 2% are defective.A bolt is drawn and found to be defective.Find the probability that it is manufactured from i) Machine A ii) Machine B iii) Machine C

3. A random variable X has the following distribution

x	0	1	2	3	4	5	6	7
P(x)	0	k	2k	2k	3k	K^2	$2k^2$	$7k^2+k$

Determine i) k   ii) P(X<6) iii) P(X≥6) iv) P(0<X<5)

4. If X is a continuous random variable and Y = aX + b then Prove that
   i) E(Y) = aE(X) + b
   ii) Var(Y) = a²Var(X)

5. The probability density function of continuous random variable X is

   $f(x) = \frac{1}{2} sinx \ for \ 0 \le x \le \pi$, otherwise 0;

   Find Mean,Median and Mode of the distribution and also find the probability between 0 and π/2

6. If X is a continuous random variable has the probability density function
   $f(x) = kxe^{-\lambda x}$ for x≥0,otherwise 0; Determine i) k ii) Mean iii) Variance

7. a) The mean and variance of Binomial distribution is 4 and 4/3. Find P(X≥1)

   b) A fair coin is tossed 6 times then find the probability of getting 4 heads.

8. Derive Poisson distribution formula

9 . Derive mean and variance of Binomial distribution.

10. Out of 800 families 5 children each,how many would you expect to have   i) 3 boys ii) 5 girls iii)either 2 or 3

    Boys iv) atleast 1 boy ? Assume equal probabilities for boys and girls

II-MID ASSIGNMENT QUESTIONS

1 .In a normal distribution 7% of the items are under 35 and 89% of the items are

under63.Determine mean and variance of the distribution   (C213.3) (Evaluation)(5m)

2 .In a normal distribution 31% of the items are under 45 and 8% of the items are
Over 64. Determine mean and variance of the distribution   (C213.3) (Evaluation)(5m)

3. Write down characteristics of Normal distribution.

4. If the population is 3,6,9,15,27.

i) List all possible samples of sample size '3' that can be taken without replacement
from the finite population

ii) Find mean of the sampling distribution of means

iii) Find standard deviation of the sampling distribution of means(C213.4)
(Comprehension)(5m)

5. The marks obtained in mathematics by 1000 students is normally distributed with mean
78% and standard deviation 11%.
   1. How many students got marks above 90%
   2. What was the highest marks obtained by the lowest 10% of the students
   3. Within what limits did the middle of 90% of the students lie.   (C213.4) (Evaluation)(5m)

6. A random sample of 400 items is found to have mean 82 and S.D.of 18. Find the
maximum error of Estimation at 95% confidence interval. Find the confidence limits for
the mean if $\bar{x}$ =82 (Evaluation)(5m)

7. Find 95% confidence limits for the mean of normally distributed population from which
the the following samples was taken 15,17,10,18,16,9,7,11,13,14

8. In two large populations, there are 30% and 25% respectively of fair haired people. Is
this difference likely to be hidden in samples of 1200 and 900 respectively from the two
populations.

9. 3 boys A, B, C are throwing a ball to each other. A always throws the ball to B and B always
throws the ball to C but C just as likely to B as to A. Show that the process is Markov
process, find the transition probability matrix and classify the states and also check the
matrix is Ergodic or not?

10. Check whether the following matrix is Regular and Ergodic. (C213.6) (Synthesis)(5m)

$$P = \begin{bmatrix} 0 & 1/2 & 1/2 & 0 \\ 1/2 & 0 & 0 & 1/2 \\ 1/2 & 0 & 0 & 1/2 \\ 0 & 1/2 & 1/2 & 0 \end{bmatrix}$$

Assignment 1 link:
https://drive.google.com/file/d/1TNA_wvRO2wfL6g8H-reTbnoZb6QI3wqX/view?usp=sharing
Assignment 2 link:
https://drive.google.com/file/d/1uhASLHjv3MLXe-hDgQTUIPdqyhKozMjF/view?usp=sharing

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Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana–501510
Website: https://siiet.ac.in/

COMPUTER ORIENTED STATISTICAL METHODS
CSE-A

ACADAMIC YEAR	COURSE NAME	NUMBEROF STUDENTS		QUESTIONPAPER SETTING		PASS%
		APPEARED	PASSED	INTERNAL	EXTERNAL	
2022-23	COSM	73	49	COURSE FACULTY	JNTUH	67.3%
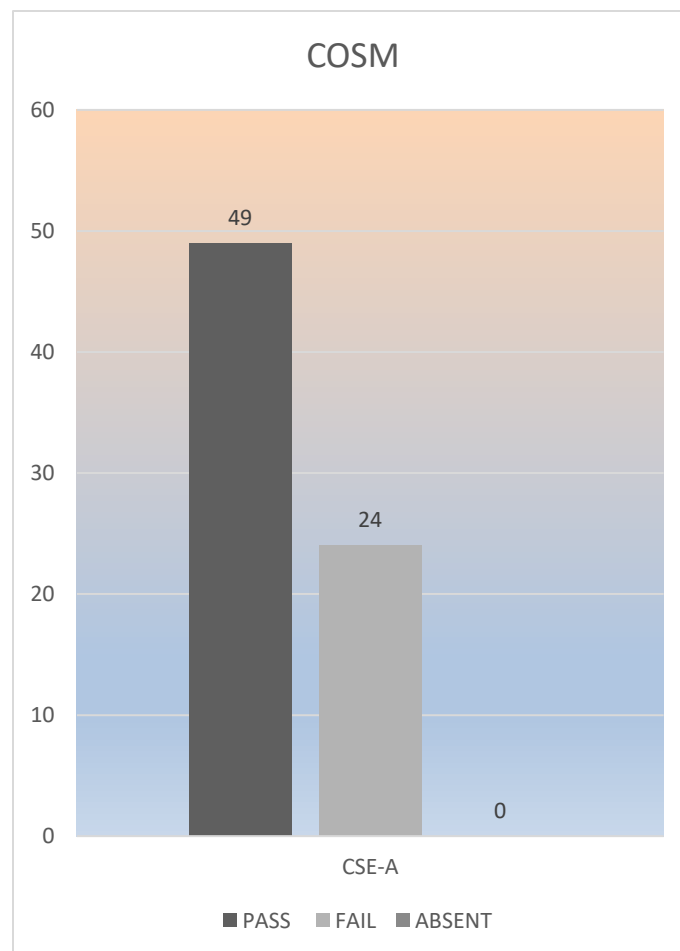
COSM

Result Analysis: II CSE-A

Course Title	**COMPUTER ORIENTED STATISTICAL METHODS**
Course Code	**MA303BS**
Programme	B. Tech
Year Semester	II year I-semester
Regulation	R 18
Course Faculty	B.R AMA DEVI, Assistant Professor, H&S Department

Weak Students:

SNo	Roll no	No. Of Backlogs in I Year	Internal-I Status (25)	Internal-II Status (25)
1	21X31A0512	3	16	13
2	21X31A0508	2	16	5
3	21X31A0510	2	17	5
4	21X31A0516	2	19	5
5	21X31A0542	2	21	23

Advanced learners:

SNo	Roll No	Percentage in I year II sem	Gate Material
1	21X31A0506	85%	Probability, Discrete Mathematics, Graph theory, Differential equations
2	21X31A0525	79%	
3	21X31A0526	76%	
4	21X31A0533	82%	
5	21X31A0540	82%	

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Accredited by NAAC with A+ Grade, Recognized under 2(f) of UGC Act 1956
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

REMEDIAL CLASSES TIME TABLE

A.Y 2023-24   SEMESTER-I

BRANCH/ SEC	MON 4.00 PM- 5.00 PM	TUE 4.00 PM-5.00 PM	WED 4.00 PM- 5.00 PM	THUR 4.00 PM- 5.00 PM	FRI 4.00 PM- 5.00 PM
II CSE-A	DE	DS	JAVA	COA	COSM
II CSE-B	DS	DE	COSM	JAVA	COA
II CSE-C	COSM	COA	DE	DS	JAVA
III CSE-A	SE	FLAT	CN	WT	PPL
III CSE-B	WT	CN	SE	PPL	FLAT
III CSE-C	FLAT	WT	PPL	CN	SE
IVCSE-A	C&NS	DM	CC	POE	RTS
IV CSE-B	CC	RTS	C&NS	DM	POE
IV CSE-C	RTS	CC	POE	C&NS	DM

HOD
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501.1C.

PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda(Vill), Ibrahimpatnam
R R Dist Telangana -501 510

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Humanities and Sciences
Course Outcome Attainment (Internal Examination-1)

Name of the faculty	B RAMADEVI		Academic Year:		2022- -23
Branch & Section:	II -CSE A		Examination:		I Internal
Course Name:	COSM		Year:	II	Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2C	Q3A	Q3b	Q3c	Q4a	Q4b	Q4c	Obj1	A1
Max. Marks ==>		5			5			5			5			10	5
1	21X31A0501		5								4			8	5
2	21X31A0502	5			5									8	5
3	21X31A0503	5			5									8	5
4	21X31A0504				5						5			8	5
5	21X31A0505							5			5			6	5
6	21X31A0506				5						5			8	5
7	21X31A0507				5			5						4	5
8	21X31A0508				5			2						4	5
9	21X31A0509	2			5									5	5
10	21X31A0510	5												7	5
11	21X31A0511	5			4									5	5
12	21X31A0512	3												6	5
13	21X31A0513	5			5									6	5
14	21X31A0514	5			5									6	5
15	21X31A0515				5						5			6	5
16	21X31A0516	4			4									6	5
17	21X31A0517	5			5									6	5
18	21X31A0518				5						5			6	5
19	21X31A0519				5			5						7	5
20	21X31A0520				5						5			6	5
21	21X31A0521	5			5									8	5
22	21X31A0522	5			5									8	5
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25	21X31A0525				5			5						8	5
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27	21X31A0527				5						5			7	5
28	21X31A0528	3			3									7	5
29	21X31A0529	5			5									8	5
30	21X31A0530	5			5									8	5
31	21X31A0531	1									3			8	5
32	21X31A0532	5			5									8	5
33	21X31A0533				5			5						8	5
34	21X31A0534				5			5						9	5
35	21X31A0535	4												8	5
36	21X31A0536	3			4									8	5
37	21X31A0537				5						5			8	5
38	21X31A0538				5						5			9	5
39	21X31A0539				4						3			8	5
40	21X31A0540	5									5			8	5
41	21X31A0541							5			5			8	5
42	21X31A0542	5			3									8	5
43	21X31A0543	5			5									9	5
44	21X31A0544	2			2									7	5
45	21X31A0545				5						5			9	5
46	21X31A0546	4			4									8	5
47	21X31A0547														5
48	21X31A0548				5						4			6	5
49	21X31A0549	3			5									8	5
50	21X31A0550	3			5									8	5

Sno	Roll No														
51	21X31A0551														5
52	21X31A0552	5			5									8	5
53	21X31A0553				5			5						8	5
54	21X31A0554	5			5									8	5
55	21X31A0555	5			5									8	5
56	21X31A0556				5			5						7	5
57	21X31A0557							5			5			7	5
58	21X31A0558														5
59	21X31A0559	5			5									9	5
60	21X31A0560	5									5			8	5
61	21X31A0561				5			5						8	5
62	21X31A0562				5			5						8	5
63	21X31A0563				5						5			5	5
64	21X31A0564				5						5			6	5
65	21X31A0565				5						5			5	5
66	22X35A0501	5			2									7	5
67	22X35A0502				5						2			7	5
68	22X35A0503	4			4									8	5
69	22X35A0504				3			2						7	5
70	22X35A0505	5			5									8	5
71	22X35A0506	5			5									8	5
72	22X35A0507				5						5			8	5
73	22X35A0508				5						5			8	5
Target set by the faculty / HoD		3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00
Number of students performed above the target		32	1	0	57	0	0	13	0	0	26	0	0	63	73
Number of students attempted		35	1	0	59	0	0	15	0	0	27	0	0	69	73
Percentage of students scored more than target		91%	100%		97%			87%			96%			91%	100%

CO Mapping with Exam Questions:

CO - 1		Y	Y		Y									Y	Y
CO - 2		Y	Y		Y			Y			Y			Y	Y
CO - 3															
CO - 4															
CO - 5															
CO - 6															

CO Attainment based on Exam Questions:

CO - 1		91%	100%		97%									91%	100%
CO - 2		91%	100%		97%			87%			96%			91%	100%
CO - 3															
CO - 4															
CO - 5															
CO - 6															

CO	Subj	obj		Asgn	Overall	Level
CO-1	96%	91%		100%	96%	3.00
CO-2	94%	91%		100%	95%	3.00
CO-3						
CO-4						
CO-5						
CO-6						

Attainment Level	
1	40%
2	50%
3	60%

Attainment (Internal 1 Examination) = 3.00

Faculty Signature

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Humanities and Sciences

Course Outcome Attainment (Internal Examination-1)

Name of the faculty	B RAMADEVI		Academic Year:	2022- 23
Branch & Section	II-CSE A		Examination:	II INTERNAL
Course Name:	COSM		Year: II	Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2C	Q3A	Q3b	Q3c	Q4a	Q4b	Q4c	Obj1	A1
Max. Marks ==>		5			5			5			5			10	5
1	21X31A0501							3			5			8	5
2	21X31A0502	5									5			9	5
3	21X31A0503				5			5						10	5
4	21X31A0504	5			5									10	5
5	21X31A0505	5			5									7	5
6	21X31A0506				5			5						8	5
7	21X31A0507	5			5									9	5
8	21X31A0508														5
9	21X31A0509				5						5			6	5
10	21X31A0510														5
11	21X31A0511				3			2						7	5
12	21X31A0512	3									1			4	5
13	21X31A0513	5			3									9	5
14	21X31A0514	5									5			6	5
15	21X31A0515				5						5			7	5
16	21X31A0516														5
17	21X31A0517				5			4						8	5
18	21X31A0518	5			3									6	5
19	21X31A0519				5			5						8	5
20	21X31A0520				5						5			9	5
21	21X31A0521														5
22	21X31A0522				3			4						8	5
23	21X31A0523	5						5						8	5
24	21X31A0524							5			5			9	5
25	21X31A0525							5			5			9	5
26	21X31A0526	5			5									8	5
27	21X31A0527	5						5						8	5
28	21X31A0528														5
29	21X31A0529	5									5			6	5
30	21X31A0530	5			5									7	5
31	21X31A0531														5
32	21X31A0532	5									1			8	5
33	21X31A0533	5			5									9	5
34	21X31A0534	5			5									10	5
35	21X31A0535														5
36	21X31A0536				2						2			8	5
37	21X31A0537				5			5						8	5
38	21X31A0538				5			5						6	5
39	21X31A0539														5
40	21X31A0540	5						5						9	5
41	21X31A0541				5			3						8	5
42	21X31A0542	5			5									8	5
43	21X31A0543	5			5									9	5
44	21X31A0544				1			2							5
45	21X31A0545	5			5									9	5
46	21X31A0546														5
47	21X31A0547														5
48	21X31A0548				5						5				5
49	21X31A0549				3						1			8	5
50	21X31A0550				5									7	5

S.No	Roll No														
51	21X31A0551														5
52	21X31A0552				5			2						7	5
53	21X31A0553														5
54	21X31A0554	5			5									9	5
55	21X31A0555				5			5						10	5
56	21X31A0556	5						1						6	5
57	21X31A0557	5									5			10	5
58	21X31A0558													8	5
59	21X31A0559				5						3			10	5
60	21X31A0560	5			5									9	5
61	21X31A0561	5			5									8	5
62	21X31A0562	5			5									8	5
63	21X31A0563				5						5			9	5
64	21X31A0564				5						5			8	5
65	21X31A0565				4						4			9	5
66	22X35A0501	5			5									8	5
67	22X35A0502	5			5									7	5
68	22X35A0503	5			5									9	5
69	22X35A0504	5									5			8	5
70	22X35A0505							5			5			7	5
71	22X35A0506	5			4									9	5
72	**22X35A0507**	5			5									8	5
73	**22X35A0508**	5									5			8	5
	Target set by the faculty / HoD	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00
	Number of students performed above	33	0	0	42	0	0	16	0	0	18	0	0	58	73
	Number of students attempted	33	0	0	44	0	0	20	0	0	22	0	0	59	73
	Percentage of students scored more than target	100%			95%			80%			82%			98%	100%

CO Mapping with Exam Questions:

	CO - 1														
	CO - 2														
	CO - 3													Y	
	CO - 4													Y	
	CO - 5													Y	
	CO - 6													Y	

CO Attainment based on Exam Questions:

	CO - 1														
	CO - 2														
	CO - 3	89%												69%	100%
	CO - 4				98%									69%	100%
	CO - 5							94%						69%	100%
	CO - 6										100%			69%	100%

CO	Subj	obj		Asgn	Overall		Level				Attainment Level	
CO-1												
CO-2												
CO-3	89%	69%		100%	86%		3.00				1	40%
CO-4	98%	69%		100%	89%		3.00				2	50%
CO-5	94%	69%		100%	88%		3.00				3	60%
CO-6	100%	69%		100%	90%		3.00					

Attainment (Internal 1 Examination) = **3.00**

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Humanities and Sciences
Course Outcome Attainment (University Examinations)

Name of the faculty	B RAMADEVI		Academic Year:		2022-23
Branch & Section:	II-CSE A		Year / Semester:		II / I
Course Name:	COSM				

S.No	Roll Number	Marks Secured		S.No	Roll Number	Marks Secured
1	21X31A0501	26		38	21X31A0538	26
2	21X31A0502	25		39	21X31A0539	6
3	21X31A0503	25		40	21X31A0540	51
4	21X31A0504	52		41	21X31A0541	27
5	21X31A0505	14		42	21X31A0542	34
6	21X31A0506	59		43	21X31A0543	26
7	21X31A0507	5		44	21X31A0544	6
8	21X31A0508	7		45	21X31A0545	32
9	21X31A0509	60		46	21X31A0546	8
10	21X31A0510	0		47	21X31A0547	27
11	21X31A0511	69		48	21X31A0548	26
12	21X31A0512	8		49	21X31A0549	26
13	21X31A0513	26		50	21X31A0550	60
14	21X31A0514	9		51	21X31A0552	26
15	21X31A0515	26		52	21X31A0554	40
16	21X31A0516	13		53	21X31A0555	30
17	21X31A0517	30		54	21X31A0556	16
18	21X31A0518	14		55	21X31A0557	35
19	21X31A0519	45		56	21X31A0559	26
20	21X31A0520	30		57	21X31A0560	35
21	21X31A0521	30		58	21X31A0561	7
22	21X31A0522	34		59	21X31A0562	5
23	21X31A0523	26		60	21X31A0563	60
24	21X31A0524	30		61	21X31A0564	40
25	21X31A0525	26		62	21X31A0565	26
26	21X31A0526	27		63	22X35A0501	17
27	21X31A0527	26		64	22X35A0502	30
28	21X31A0528	5		65	22X35A0503	0
29	21X31A0529	11		66	22X35A0504	14
30	21X31A0530	5		67	22X35A0505	30
31	21X31A0531	6		68	22X35A0506	9
32	21X31A0532	26		69	22X35A0507	26
33	21X31A0533	27		70	22X35A0508	30
34	21X31A0534	45				
35	21X31A0535	0				
36	21X31A0536	0				
37	21X31A0537	26				

Max Marks		75				

Class Average mark	26		**Attainment Level**	**% students**	
Number of students performed above the target	28		1	40%	
Number of successful students	68		2	50%	
Percentage of students scored more than target	41%		3	60%	
Attainment level	**2**				

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Humanities and Sciences
Course Outcome Attainment

Name of the faculty	B RAMADEVI		Academic Year	2022-23
Branch & Section:	II-CSE A		Examination:	Internal&External
Course Name:	COSM		Year:	II
			Semester:	I

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	2.00	2.70
CO2	3.00		3.00	2.00	2.70
CO3		3.00	3.00	2.00	2.70
CO4		3.00	3.00	2.00	2.70
CO5		3.00	3.00	2.00	2.70
CO6		3.00	3.00	2.00	2.70
Internal & University Attainment:			3.00	2.00	
Weightage			70%	30%	
CO Attainment for the course (Internal, University)			2.10	0.60	
CO Attainment for the course (Direct Method)			2.70		

Overall course attainment level   **2.70**

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics and Communication Engineering

Program Outcome Attainment (from Course)

Name of Faculty:	B RAMADEVI		Academic Year:	2022-23
Branch & Section:	II-CSE A		Year:	II
Course Name:	COSM		Semester:	I

CO-PO mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	1	1	-	-	-	-	-	-	1
CO2	3	2	-	1	1	-	-	-	-	-	-	1
CO3	2	2	-	1	1	-	-	-	-	-	-	1
CO4	2	3	-	1	1	-	-	-	-	-	-	2
CO5	3	2	-	1	1	-	-	-	-	-	-	2
CO6	3	2	-	1	1	-	-	-	-	-	-	2
Course	2.67	2.17	-	1.00	1.00	-	-	-	-	-	-	1.50

CO	Course Outcome Attainment
CO1	2.70
CO2	2.70
CO3	2.70
CO4	2.70
CO5	2.70
CO6	2.70
Overall course attainment level	2.70

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	2.40	1.95	-	0.90	0.90	-	-	-	-	-	-	1.35

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)

ATTENDANCE REGISTER

Attendance register link:

https://drive.google.com/file/d/1oGwQteDz0j7JyAKwM3MINy1qdCa918I-/view?usp=sharing