SRI VENKATESWARA COLLEGE OF ENGINEERING

COURSE DELIVERY PLAN - THEORY

Department of Applied Mathematics	LP:MA18455 Rev. No: 00 Date:11.12.2019
B.E/B.Tech/M.E/M.Tech : Bio-Tech Regulation:2018 PG Specialisation : Sub. Code / Sub. Name : MA18455 / Probability and Statistics Unit : I	

Unit syllabus: RANDOM VARIABLES

Discrete and continuous random variables - Moments - Moment generating functions - Binomial, Poisson, Geometric, Uniform, Exponential, Gamma, and Normal distributions.

Objective: To enable the student to know the concept of random variables and knowledge of standard distributions which are applicable for real life problems.

Session No *	Topics to be covered	Ref	Teaching Aids
1.	Introduction to unit I. Random variables.	2-Ch 4,pg 101-103	BB/PPT
2.	Probability mass function, probability density function Cumulative distribution function.	3-Ch 3,pg 63-72	BB/PPT
3.	Moments and problems based on moments.	5-Ch 3,pg 3.5 & 3.6	BB/PPT
4.	Moment generating functions (MGF), and problems based on MGF.	5-Ch 3,pg 3.6-3.8 , 3.17-3.20	BB/PPT
5.	Binomial distribution.	2-Ch 4,pg 104-109	BB/PPT
6.	Poisson distribution.	3-Ch 5,pg 135-138	BB/PPT
7.	Geometric distribution.	2-Ch 4,pg 133-136	BB/PPT
8.	Uniform distribution.	2-Ch 5,pg 165-169	BB/PPT
9.	Exponential distribution.	3-Ch 6,pg 168-169	BB/PPT
10.	Gamma distribution.	2-Ch 5,pg 169-171	BB/PPT
11.	Normal distribution.	2-Ch 5,pg 153-162	BB/PPT
12.	Summarizing the unit.	2-Ch 4,pg 104-109	BB/PPT

Content beyond syllabus covered (if any): Application of One dimensional random variable in real life problem

* Session duration: 50 minutes

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Sub. Code / Sub. Name: MA18455 / Probability and Statistics

Unit : II

Unit syllabus: TWO DIMENSIONAL RANDOM VARIABLES
Joint distributions - Marginal and conditional distributions – Covariance - Correlation and Linear Regression – Transformation of random variables - Central limit theorem (for independent and identically distributed random variables).

Objective: To enable the students to gain knowledge in two random variables and functions of random variables.

Session No *	Topics to be covered	Ref	Teaching Aids
13.	Introduction - Unit Syllabus - Joint distributions.	3-Ch 3,pg 74-77	BB/PPT
14.	Marginal and conditional distributions.	3-Ch 3,pg 77-81	BB/PPT
15.	Problems on Marginal and conditional distributions.	3-Ch 3,pg 77-81	BB/PPT
16.	CAT – I		
17.	Covariance.	5-Ch 3,pg 3.8,3.9 , 3.21-3.23	BB/PPT
18.	Properties and problems on Correlation coefficients.	2-Ch 11,pg 374-378	BB/PPT
19.	Properties and problems on Regression.	1,Ch5,pg169-171	BB/PPT
20.	Problems on Correlation and Regression.	1,Ch5,pg172-175	BB/PPT
21.	Problems on transformation of random variables.	3-Ch 7,pg 177-185	BB/PPT
22.	Central limit theorem.	5-Ch 4,pg 4.5,4.6 , 4.27, 4.28	BB/PPT
23.	Problems on Central limit theorem.	5-Ch 4,pg 4.5,4.6 , 4.27, 4.28	BB/PPT
24.	Summarization of Unit-II.	3-Ch 3,pg 74-81	BB/PPT

Content beyond syllabus covered (if any): Application of Correlation and Regression in real life problem

* Session duration: 50 mins

Sub. Code / Sub. Name: **MA18455 / Probability and Statistics**

Unit : III

Unit syllabus: TESTING OF HYPOTHESIS

Sampling distributions – Estimation of parameters-Statistical hypothesis-Large sample test based on Normal distribution for single mean and difference of means-Tests based on t, Chi-square and F distributions for mean, variance and proportion-Contingency table (test for independent)-Goodness of fit.

Objective: To enable the students to gain knowledge in managerial problems especially in quality control problems.

Session No *	Topics to be covered	Ref	Teaching Aids
25.	Introduction to sampling distribution.	3-Ch 8,pg 194-200	BB/PPT
26.	Procedure for Testing of hypothesis.	2-Ch 7,pg 238-244	BB/PPT
27.	Testing of hypothesis for single mean using t-test.	2-Ch 7,pg 250,251	BB/PPT
28.	Testing of hypothesis for difference of means using t-test.	2-Ch 7,pg 264,265	BB/PPT
29.	Testing of hypothesis for mean using Normal Distribution.	2-Ch 7,pg 246-249	BB/PPT
30.	Testing of hypothesis for difference of mean using Normal Distribution.	2-Ch 7,pg 260-263	BB/PPT
31.	Problems based on F-test	2-Ch 8,pg 286-288	BB/PPT
32.	Testing of hypothesis for mean, variance using Chi-square distribution.	2-Ch 8,pg 284-286	BB/PPT
33.	Chi-square Test for independence of attributes.	2-Ch 9,pg 308-311	BB/PPT
34.	Chi-square Test for goodness of fit.	2-Ch 9,pg 311-313	BB/PPT
35.	Summarizing the unit.	2-Ch 7,pg 238-288	BB/PPT
36.	CAT – II		

Content beyond syllabus covered (if any): Application of Testing of hypothesis in managerial problems. Demonstration using EXcel

* Session duration: 50 mins

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COURSE DELIVERY PLAN - THEORY

Sub. Code / Sub. Name: **MA18455 / Probability and Statistics**

Unit : IV

Unit syllabus: DESIGN OF EXPERIMENTS

One way and two way classifications – Completely randomized design - Randomized block design - Latin square.design

Objective: Students would be exposed to statistical methods designed to contribute to the process of making scientific judgments in the face of uncertainty and variation.

Session No *	Topics to be covered	Ref	Teaching Aids
37.	Introduction—Unit syllabus.	5-Ch9,pg9.1-9.2	BB/PPT
38.	One way classification.	5-Ch9,pg9.3-9.4	BB/PPT
39.	Problems.	5-Ch9,pg9.13-9.19	BB/PPT
40.	Two-way classification.	5-Ch9,pg9.6-9.7	BB/PPT
41.	Problems.	5-Ch9,pg9.19-9.24	BB/PPT
42.	Completely randomized design.	5-Ch9,pg9.12	BB/PPT
43.	problems	4-Ch9,pg721-723	BB/PPT
44.	Randomized block design.	5-Ch9,pg9.12	BB/PPT
45.	problems	4-Ch9,pg723-726	BB/PPT
46.	Latin square design	5-Ch9,pg9.12,3-Ch15,pg556-558	BB/PPT
47.	problems	5-Ch9,pg9.24-9.25	BB/PPT
48.	Summarizing the unit.	5-Ch9,pg9.12	BB/PPT

Content beyond syllabus covered (if any): Application of Design of experiments in real life problem

* Session duration: 50 mins

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COURSE DELIVERY PLAN - THEORY

Sub. Code / Sub. Name: **MA18455 / Probability and Statistics**

Unit : V

Unit syllabus: STATISTICAL AND QUALITY CONTROL

Control charts for measurements (X and R charts) – Control charts for attributes (p, c and np charts).-Tolerance limits-Acceptance sampling.

Objective: To enable the students to know the concepts of statistical Quality control theory and their applications on real time problems.

Session No *	Topics to be covered	Ref	Teaching Aids
49.	Introduction—Unit syllabus	4,Ch10,pg761-763	BB/PPT
50.	Control charts for measurements - X charts.	4,Ch10,pg765	BB/PPT
51.	Problems based on X-chart.	4,Ch10,pg769-770	BB/PPT
52.	Control charts for attributes – R chart.	4,Ch10,pg766	BB/PPT
53.	Problems based on R-chart	4,Ch10,pg769-770	BB/PPT
54.	Control charts for attributes –p charts.	4,Ch10,pg784-786	BB/PPT
55.	.Problems based on –p chart	4,Ch10,pg784-786	BB/PPT
56.	Control charts for attributes- c charts.	4,Ch10,pg786-788	BB/PPT
57.	Problems based on - c charts.	4,Ch10,pg786-788	BB/PPT
58.	Control charts for attributes - np charts.	2,Ch14,pg528-529	BB/PPT
59.	Summarizing the unit.	4,Ch10,pg761-770	BB/PPT
60.	CAT – III		

Content beyond syllabus covered (if any):

* Session duration: 50 mins

Sub Code / Sub Name: **MA18455 / Probability and Statistics**

TEXT BOOKS:

1. Milton. J. S. and Arnold. J.C., "Introduction to Probability and Statistics",Tata McGraw Hill, 4th Edition, 2007.
2. Johnson. R.A. and Gupta. C.B., "Miller and Freund's Probability and Statistics for Engineers", Pearson Education, Asia, 7th Edition, 2007.
3. Papoulis. A and Unnikrishnapillai. S., "Probability, Random Variables and Stochastic Processes " Mc Graw Hill Education India , 4th Edition, NewDelhi , 2010.
4.Richard A.J, Irwin Miller, Jhon .Freund., "Miller and Freund's - Probability and Statistics for Engineers", Pearson Education, , Asia, 8th Edition, 2007

REFERENCES:

1. Veerarajan. T, "Probability, statistics and random processes", McGraw Hill Publishers, 3rd edition, 2011.
2. Devore. J.L., "Probability and Statistics for Engineering and the Sciences", Cengage Learning, New Delhi, 8th Edition, 2012.
3. Walpole. R.E., Myers. R.H., Myers. S.L. and Ye. K., "Probability and Statistics for Engineers and Scientists", Pearson Education, Asia , 8th Edition, 2007.
4. Ross, S.M., "Introduction to Probability and Statistics for Engineers and Scientists", 3rd Edition, Elsevier, 2004.
5. Spiegel. M.R., Schiller. J. and Srinivasan. R.A., "Schaum's Outline of Theoryand Problems of Probability and Statistics", Tata McGraw Hill Edition, 2004

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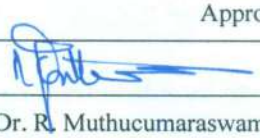
Signature		
Name	Dr. B. Thilaka	Dr. R. Muthucumaraswamy
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Date	11/12/2019	11/12/2019
Remarks *:		
Remarks *:		