



**R.E. Society's
R. P. Gogate College of Arts &
Science and R. V. Jogalekar
College of
Commerce(Autonomous),
Ratnagiri**

**Certificate Course in Applied
Mathematics & Statistics
Syllabus**

**To be implemented from Academic
Year- 2024-2025**

Name of Programme	Certificate Course
Level	UG and PG
No. of Semesters	01
Year of Implementation	2024-25
Programme Specific Outcomes (PSO)	<ol style="list-style-type: none"> 1. Learner shall able to develop positive attitude towards mathematics as an interesting and valuable subject. 2. Enhancing students' overall development and to equip them with mathematical modelling, abilities, problem solving skills, creative talent. 3. Learner should be able to acquire good knowledge and understanding in applied areas of mathematics. 4. Learner should apply Mathematical models to the problems of society.
Relevance of PSOs to the local, regional, national, and global developmental needs	<p>Mathematics is useful at Global, Regional and local level. Better understanding of mathematics helps the student to visualise the solution of the problems in society. The application part is taken care of so that the learner should be able to create mathematical models to the problems in society. The skill set, knowledge acquired during the completion of programme shall make him employable in fields like Teaching, Banking, Research analyst, various IT industries.</p>

Evaluation Scheme:

The performance of the learners shall be evaluated into two parts. The learner's performance shall be assessed with Continuous Evaluation (CE) and Semester End Evaluation (SEE). Continuous Evaluation of each course will be of 40% and Semester End Evaluation of each course will be of 60%. The allocation of marks for CE and SEE are as shown below.

A. Continuous Evaluation (20 Marks)

Method	Marks
Unit Test - (MCQ / Descriptive - Based on Theory and/or Problems - Online/Offline – 1 Unit test of 10 marks / 3 Unit tests of 10 marks each and best one out of three will be considered)	10
Assignments / Seminar / Group discussion	05
Attendance and active participation in classroom	05

B. Semester End Evaluation (30 Marks - 1 Hour)

Comprehensive written examination of 1-hours duration will be conducted at the end of each semester to evaluate learner's understanding of the course material. The examination will cover the entire syllabus and include a mix of short answer questions and descriptive type questions.

Question Paper Pattern :

Question No.	Unit	Marks
1	Unit 1	Short/Long Answers (10)
2	Unit 2	Short/Long Answers (10)
3	Unit 3	Short/Long Answers (10)

Passing Scheme:

For this course, there will be separate head of passing for Continuous evaluation (CE) and for Semester End Evaluation (SEE). Course grade points and course grade will be decided by the aggregate marks. In order to earn credits of this course(or to get certificate), a learner is required to secure a minimum of 40% marks in Continuous Evaluation and 40% marks in Semester End Evaluation.

$$\text{Aggregate Marks} = \text{Marks in Continuous evaluation} + \text{Marks in Semester End Evaluation}$$

Credit and Grade Scheme:

% of Aggregate Marks Obtained	Course Grade Point	Course Grade	Performance Indicator	Credits Earned
90.0 to 100	10	O	Outstanding	As mentioned in the syllabus
80 to 89.99	9	A+	Excellent	
70 to 79.99	8	A	Very Good	
60 to 69.99	7	B+	Good	
55 to 59.99	6	B	Above Average	
50.0 to 54.99	5	C	Average	
40 to 49.99	4	P	Pass	
Less Than 40	0	F	Fail	0
Absent	0	Ab	Absent	

Certificate Course in Applied Mathematics
Course Structure

U.G. and P.G.

(To be implemented from Academic Year- 2024-25)

Teaching Pattern :

1. Four lectures per week for this course.
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Name of the Course	Certificate Course in Applied Mathematics and Statistics
Course Code	USMO01
Class	U.G. and P.G.
Semester	-
Number of Credits	2
Nature	Theory
Type	Certificate Course
Highlight revision specific to employability/ entrepreneurship/ skill development	This course gives introduction to basic concepts of applied mathematics and Statistics.

Unit No.	Units	No. of Lectures
1	Statistics and Probability Theory	10
2	Testing of Hypothesis	08
3	LPP and Transportation problem	12

Nomenclature: Certificate Course in Applied Mathematics and Statistics

Course Outcomes:

On successful completion of this course, a learner will be able to:

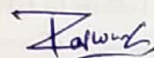
- CO1: find central tendencies and measures of variation for given data
- CO2: solve the problems based on time series, estimate future values, find index numbers
- CO3: can find probabilities and also solve problems based on particular probability distribution
- CO4: form hypothesis and tests the hypothesis using different tests.
- CO5: solve LPP and transportation problems.

Curriculum:

Unit No.	Title and Learning Points	
1	Statistics and Probability Theory	10 Lectures
	1.1 Introduction to statistics 1.2 Mean, mode, median 1.3 standard deviations, correlation, regression 1.4 time series, index No. , skewness. 1.5 Probability Theory	
2	Testing of Hypothesis	08 Lectures
	2.1 Terminology in Testing of hypothesis 2.2 t-test for significance of sample mean, t-test for finding the significance of difference between two sample mean 2.3 chi-square test for association between two attributes, Chi-square test for goodness of fit.	
3	LPP and Transportation problem	12 Lectures
	3.1 LPP 3.2 Transportation problem	

Learning Resources recommended:

1. Business Statistics- Mandar Bhanushe
2. Fundamentals of Mathematical Statistics- S. C Gupta, V.K Kapoor
3. Operation Research- Gupta



Name and Signature: Dr. Diwakar P. Karwanje
Chairman of BoS of Mathematics