

SAURASHTRA UNIVERSITY

RAJKOT

(ACCREDITED GRADE "A" BY NAAC)



FACULTY OF SCIENCE

Syllabus for

M. Phil. (STATISTICS)

Choice Based Credit System

With Effect From: 2018-19

Programme Outcomes:

PO1: Research ability and skill development.

PO2: Identification of research problems.

Programme Specific Outcomes:

PSO1: Student can identify research area and research problem using literature review.

PSO2: Analytical skill development using data analysis on various software platforms.



Semester - 1							
Subject Code	Title of Paper	Course Credits	No. of Hrs. Per Week	Weightage For Internal Examination	Weightage For Semester End Examination	Total Marks	Duration of Semester end Exam in Hrs.
SMT-1001	Applied Statistics and Statistical Computing With R	4	4	-	100	100	3 hrs
SMT-1002	Practical: Data Analysis using SPSS and R-Programming (Practical based on SMT-1001)	8	8	-	100	100	3 * 2 = 6 hrs
Total		12	12		200	200	9

Semester - 2							
Subject Code	Title of Paper	Course Credits	No. of Hrs. Per Week	Weightage For Internal Examination	Weightage For Semester end Examination	Total Marks	Duration of Semester end Exam in Hrs.
MS-2001	Dissertation and Viva	12	12	-	200	200	-

Ordinance, Regulations, Teaching and Examination Scheme for M.Phil. Statistics:

Ordinance:

O.M.Phil.– (Stat.) 1: Any Post graduate degree with at least one of the subject Statistics / Mathematics / Computer Science / Information Technology with at least 55% marks are eligible for admission.(UGC Regulations,2016 dated 5/5/2016)

O.M.Phil.– (Stat.) 2:The duration of the program will be of one full time academic year. The examination for the M.Phil program will be divided into two semesters. No candidate will be allowed to join any other course or service simultaneously.

O.M.Phil.– (Stat.) 3: Candidate who have passed an equivalent examination from any other university or examining body and is seeking admission to the M.Phil Program will be required to provide necessary eligibility certificate.

O.M.Phil.– (Stat.) 4: Candidate desirous of appearing at any semester examination of the M.Phil Program must forward their application in the prescribed form to the University through the head of the department on or before the date prescribed for the purpose under the relevant ordinances.

O.M.Phil.– (Stat.) 5: No candidate will be permitted to reappear at any semester examination, which he has already passed. The marks of successfully completed paper will be carried forward for the award of class.

O.M.Phil.– (Stat.) 6: There shall be an examination at the end of each semester to be known as first semester examination and second semester examination. At which a student shall appear in that portion of theory papers, practical and viva-voice if any, for which he/she has kept the semester in accordance with the regulations in this behalf.

A candidate whose term is not granted for whatsoever reason shall be required to keep attendance for that semester or term when the relevant papers are actually taken at the department.

O. M.Phil. – (Stat.) 7: Medium of instruction is English.

O. M.Phil. – (Stat.) 8: Any candidate can go up to take admission in next semester irrespective of failure in any number of subjects.

Regulations:

R.S.M.Phil– (Stat.) 1. Standard of Passing

The standard of passing the M.Phil Program examination will be as under:

- (1) To pass any semester examination of the M.Phil Program, a candidate must obtain at least 50% marks in the university examination in each course.
- (2) Class will be awarded based on Earned Grade Point, SGPA and CGPA as per rules of University.

R.S.M.Phil. – (Stat.) 2. Marks and credit hours of each course

Marks of university examination and credit hours will be asunder:

- (1) Total marks of theory course is 100.
- (2) Marks of each unit in the course are equal (i.e.20 Marks).Total marks of each course are $20 \times 5 = 100$ for university examination.
- (3) Lectures for each unit in the course are equal (i.e.12 hours). Total lectures of each course are $12 \times 5 = 60$.
- (4) Total mark of practical course is 100 and dissertation-viva course is 200 (100 marks of evaluation and 100 marks of viva-voce). No internal examination.

R.S.M.Phil.– (Stat.) 3. Structure of Question Paper

Question Paper contains 5 questions (each of 20 marks).

Question1: Attempt ten objective type questions (not MCQ) like definition, reason, answer in one line, answer in one word etc.,

Question– 2 to Question– 5: Attempt two out of three questions.

R.S.M.Phil. – (Stat.) 4. Following is the syllabus of each course of M.Phil Program.

SMT– 1001: APPLIED STATISTICS AND STATISTICAL COMPUTING WITH R

(60 Hours)

Course Outcomes:

CO1: Student equipped with knowledge of operation research and R language.

1. Linear programming problem: feasible, basic feasible and optimal solution. Example of LPP. Solution of LPP using graphical method, Simple method, revised simple solution, dual, dual simple method.
2. Transportation and assignment problem (both balanced and unbalanced case). Game theory: Two person games, pure and mixed strategies, finding solution in 2×2 , $2 \times m$, and $m \times n$ games.(Equivalent of rectangle game and linear programming.)
3. Basic characteristics of queuing system, different performance measures, steady state solution of markov queuing models: $m \setminus m \setminus 1$, $m \setminus m \setminus 1$ with limited waiting space, $m \setminus m \setminus c$, $m \setminus m \setminus c$ with limited waiting space.
4. Inventory problems and analytical structure. Simple deterministic and stochastic models of inventory controls. Replacement problems: block and age replacement policies, dynamic programming approach for maintenance problems; replacement of terms with long life, PERT and CPM. Sequencing and scheduling problems.
5. R – Language. : Introduction to R, elementary programming, application to data analysis.

Reference:

1. Taha, H. A. (1982). Operational research: an introduction; Macmillan.
2. Kant Swaroop, Gupte, P. K. and Singh, M .M.(1985).Operations research, sultan chand and sons.
3. J.K. Sharma (1990). Mathematical models in operation research. Tata McGrawhill.
4. Hadely,g. (1964). Non-linear and dynamic programming. Addison Wesley.
5. Maria L. Rizzo. Statistical Computing with R.

SMT– 1002: PRACTICAL: DATA ANALYSIS USING SPSS AND R- PROGRAMMING
(120 Hours)

Course Outcomes:

CO1: Practical knowledge of programming in R language and data analysis using SPSS.

(Practical based on SMT-1001)

SEMESTER– 2

SMT – 2001: Dissertation and Viva

Course Outcomes:

CO1 Research Skill development.

Dissertation work can be developed in-house or in industry. Student must submit progress report to internal guide every 15 days. Dissertation report must be submitted in due time.

