

**Rajarshi Shahu Mahavidyalaya (Autonomous), Latur**  
**Department of Mathematics**  
**Academic Year : 2021-2022**  
**Term - First (Jul,2021 - Nov.,2021)**

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Name of Assistant Professor : Mrs. A. B. Kale

Subject : Mathematics

1. Details of Classes to be taught

Sr. No.	Class	Course Name	Course Code	(Theory / Practical)
1.	U.G-I	Algebra-I	U-MAT-138	Theory
2.	U.G-II	Group Theory	U-MAT-340	Theory
3.	P.G-I	Theory of Probability	P-COA-167	Theory
4.	P.G-II	Classical Mechanics	P-LAB-169	Theory
5.	U.G-II	Lab Course on Problems in Group Theory	U-MAT-342	Practical
6.	P.G-I	Lab Work-I (Latex Typesetting)	P-LAB-169	Practical

1. Summary of Lesson Plan for U.G-II

Sr.No.	Unit to be covered	Date	No.of Lec- tures	Academic activities to be organized	No.of Test / Assignment with topic and date
1.	<b>Unit-I : Groups and Sub-group</b> Definition of group, subgroups, Elementary properties of groups, finite groups, cyclic groups and its properties.	08/07/2021 to 14/08/2021	18		
2.	<b>Unit- II Permutation groups and isomorphism</b> Symmetric groups, Permutations, Group isomorphism, Automorphism and their properties, Cayleys theorem,	20/08/2021 to 30/09/2021	17	Classroom Seminar	Assignment 1
3.	<b>Unit-III Coset and Lagrange's theorem</b> Definition of coset and properties, Lagrange's theorem and its consequences, an applications of cosets to permutation groups. External direct product, definition and examples of normal subgroups and factor groups.	01/10/2021 to 25/11/2021	20	Classroom Seminar	Assignment 2

## 2. Summary of Lesson Plan for P.G-II

Sr.No.	Unit to be covered	Date	No.of Lectures	Academic activities to be organized	No.of Test / Assignment with topic and date
1.	<b>UNIT I:</b> Mechanical of system of particles, Mechanics of system of particles, Conservation theorems conservative forces with examples, Constraints, Generalized co-ordinates. D. Alembert's principle, Lagrange's equations of motion. The forms of Lagrange's equations of motion for non conservative systems and partially conservative and partially non conservative systems. Kinetic energy as a homogeneous function of generalized velocities. Simple applications of the Lagrangian formulation.	05/07/2020 to 31/07/2021	23	Classroom Seminars	
2.	<b>UNIT II :</b> Cyclic co-ordinates and generalized momentum conservation Theorems, Calculus of variation, Euler Lagrange's equation, First integrals of Euler Lagrange's equation, the case of several dependent variables, Geodesics in a plane, the minimum surface of revolution, Brachistochrome problem. Isoperimetric problems, problems of maximum enclosed area.	02/08/2021 to 02/09/2021	25	Classroom Seminars	Assignment 1
3.	<b>UNIT III:</b> Hamiltonian function, Hamilton's canonical equations of motion, Derivation of Hamilton's equations from variational principle, Physical significance of Hamiltonian, the principle of least action, Jacobi's form of the least action principle, cyclic co-ordinates and Routh's procedure.	03/09/2021 to 30/09/2020	21	Classroom Seminars	Assignment 2
4.	<b>UNIT IV:</b> The independent co-ordinates of a rigid body, Orthogonal transformations, Properties of transformation matrix, Infinitesimal rotations, The Eulerian angles, The Cayley-Klein parameters, Eulers theorem on motion of rigid body, Angular momentum and kinetic energy of motion of a rigid body about a point.	01/10/2021 to 30/10/2021	23	Classroom Seminars	

Akale  
Teacher

Mrs. A. B. Kale

M. J.  
HoD

J. B.  
Principal

**PRINCIPAL**  
Rajarshi Shahu Mahavidyalay.  
(Autonomous), Latur

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**( Autonomous )**

**Structured Work Plan for Teaching ( 2021 to 2022 )**

**1. Details of Classes to be taught**

Sr. No.	Class	Name of Assist. Prof.	Subject	Paper
1	B.Sc.-II	Mrs. A.B.Kale	Mathematics	Group Theory + Practical
2	M.sc -II			Classical Mechanics
3	M.Sc.-I			Ordinary Differential Equation
4	M.Sc.-I			Theory of Probability

**3.Summary of Lesson Plan**

**Name of Teacher:** Mrs A.B.Kale

**Class :** M.Sc. I (First Semester)

Sr. No.	Subject	Components/ Sub-components of curriculum	Required Lectures	Duration	Academic activities to be organized
1	Mathematics (Ordinary Differential Equations – P-ODE-166)	<p align="center"><b>Unit I</b></p> <p align="center"><b>Unit II :</b></p> <p align="center"><b>Unit III :</b></p> <p align="center"><b>Unit IV</b></p>	<p align="center">20</p> <p align="center">18</p> <p align="center">20</p> <p align="center">17</p>	<p align="center">27/09/2021 -22/10/2021</p> <p align="center">23/10/2021-13/11/2021</p> <p align="center">15/11/2021-9/12/2021</p> <p align="center">10/12/2021-30/12/2021</p>	<p align="center">Assignment 1</p> <p align="center">Seminar</p> <p align="center">Assignment 2</p> <p align="center">MCQ Test</p>

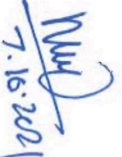
4. Summary of Lesson Plan

Name of Teacher: Mrs A. B. Kale

Class : M.Sc. I (First Semester)

Sr. No.	Subject	Components/ Sub-components of curriculum	Required Lectures	Duration	Academic activities to be organized
1	Mathematics (Theory of Probability P-THP -168)	Unit I  Unit II :  Unit III :  Unit IV	15  18  20  15	27/09/2021 -22/10/2021  23/10/2021-13/11/2021  15/11/2021-9/12/2021  10/12/2021-30/12/2021	Assignment 1  Seminar  Assignment 2  MCQ Test

  
Teacher

  
7.16.2021  
Head,  
Department of Mathematics,  
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Principal  
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