RajarshiShahuMahavidyalaya (Autonomous), Latur

Department of Mathematics

Structured Work Plan for Teaching

FirstTerm (Jun 2022 to Oct2022)

Name: Vishnu Rajendra Sonwane

1. Details of Classes to be taught

Sr. No.	Class	Semester	Name of Asst. Prof.	Subject	Course Code	Paper	Workload
1	B.Sc.I	I Sem	Mr.V.R.Sonwane	Mathematics	U-MAT-139	Calculus	03
2	B.Sc.III	V Sem			U-MAT-556(A)	Linear Algebra	03
3	B.Sc.III	V Sem			U-MAT-558(A)	Linear Algebra(Lab Course)	06
4	M.Sc I	I Sem			P-THP-163(B)	Theory of probability	06
5	M.Sc II	III Sem			P-COT-368(A)	Classical Mechanics	06
6	M.Sc.-I	I Sem			P-SEM-170	Seminar	01
7	M.Sc.-II	III Sem			P-SEM-371	Seminar	01
8	M.Sc.-II	III Sem			P-PRO-370	Project Guidence(2 Group)	02
						TOTAL	28 Lectures/Week

Course Teacher

Mr. Vishnu R. Sonwane

HoD

Head,
Department of Mathematics,
Rajarshi Shahu Mahavidyalaya,
(Autonomous) Latur-413512

Dr. Mahesh S. Waware

Rajarshi Shahu Mahavidyalaya, Latur (Autonomous)

5.8.22

Principal

PRINCIPAL
Rajarshi Shahu Mahavidyalaya
(Autonomous), Latur

1. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane Class : B.Sc.I (I - Semester) Calculus Course Code:U-MAT-139 Paper-II

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Mathematics	**Unit I: The Real Numbers:** The Real numbers system: Introduction, R as complete order field Bounded and unbounded sets Supremum, Infimum, order completeness of R, Absolute Value of a Real Number, Limit points of a set, open and Closed sets: Closure of a set, Interior and exterior of a set, countable and uncountable sets. **Unit II: Real Functions, Limit and Continuity** Algebraic operations on functions, bounded and unbounded functions, limit of a function, algebra of limits, one sided limits, limits at infinity and infinite limits Continuous function discontinuity of a function, algebra of continuous function,	10/07/2022 To 06/08/2022 07/08/2022 To 03/09/2022	12 11	Guest lecture. Quiz.	Assignment of Unit first before 08/08/2022 Assignment of Unit Second before 06/09/2022

		Cauchy's criterion for finite limits, properties of functions continuous in closed finite intervals, Uniform continuity. **Unit III: The Derivatives** Derivability of a function, Algebra of derivatives, geometrical meaning of derivative, sign of derivative at a point, Darboux's theorem, **Unit IV: Mean Value Theorems** Rolle's Mean value theorem, Lagrange's mean value theorem. Increasing and decreasing functions, monotonic functions, Cauchy's mean value theorem, generalized mean value theorem.	04/09/2022 To 24/09/2022 25/09/2022 To 15/10/2022	08 09	Quiz. Guest lecture.	Assignment of Unit thirdbefore 30/09/2022 Assignment of Unit fourth before 17/10/2022

Course Teacher

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2. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane **Class: B.Sc.III(V- Semester) Linear Algebra** **Course Code:U-MAT-556(A)** ***Paper-X***

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Mathematics	**Unit-I Vector Space** Properties of Vector operations in R^n, Euclidean N Space. Norm and distance in n-space, Vector Space definition, examples and simple properties. Subspace, solution space of homogeneous systems, Linear Combination of vectors, linear span of Vectors. Linear dependence and independence, Basis and Dimension .Coordinate to basis, Row space, column space and null space (only statements), Rank-nullity for Matrices (only statements) **Unit II Inner Product Space** Definition and Examples, Length and distance in inner product space, properties. Cauchy-Schwarz inequality, Properties of Length and	20/06/2022 To 20/07/2022 21/07/2022 To 30/08/2022	15 15	Guest lecture. Quiz.	Assignment before 25/07/2022 Assignment before 06/08/2022

		distances in inner product space, Angle between vectors, orthogonality, Orthogonal and orthonormal bases, co-ordinate relative to orthogonal and orthonormal bases, Gram-Schmidt methods (Examples only) **Unit III Linear Transformation** Definition and Example of Linear transformations, properties, Kernel and range of linear transformation .Dimension theorem of Linear Transformation .Linear Transformation from R^n to R^m ,Linear Transformation from images of basis vectors ,All Linear transformations are matrix transformation, Standard matrices of linear transformations.	01/08/2022 To 12/10/2022	17	Seminar	Assignment before 12/10/2022

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3. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane Class : B.Sc.III (V - Semester) Linear Algebra Course Code:U-MAT-558(A) Paper-VIII(A)

Sr. No.	Subject	Practical to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Mathematics	Practical-1 to Practical-10	04/07/2022 To 02/07/2022	10	Exercise Question solved	
		Practical-11 to Practical-20	03/08/2022 To 30/08/2022	10	Exercise Question solved	
		Practical-21 to Practical-30	01/09/2022 To 15/10/2022	10	Exercise Question solved	

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5. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane Class: M.Sc.II (III- Semester) : Classical MechanicsCourse Code:P-COT-368(A) Paper-XIV

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Mathematics	**UNIT – I** 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 Lagranian formulation. **UNIT – II** Cyclic co-ordinates and generalized	20/06/2022 To 13/07/2022	15	Guest lecture	Assignment before 15/07/2022

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		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. **UNIT – III** 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.	14/07/2022 To 12/08/2022	15	Quiz.	Assignment before 25/08/2022
			13/08/2022 To 14/09/2022	15	Seminar	Assignment before 22/09/2022

		UNIT – IV The independent co-ordinates of a rigid body,Orthogonal transformations,Properties of transformation matrix, Infinitesimal rotations, The Eulerian angles, The Calyley-Klein parameters, Eulers theorem on motion of rigid body, Angular momentum and kinetic energy of motion of a rigid body about a point.	15/09/2022 To 14/10/2022	15	Seminar	Assignment before 15/10/2022

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6	M.Sc.-I	Seminar	July 2022 To Oct 2022	20	2 student per week	
7	M.Sc.-II	Seminar	July 2022 To Oct 2022	20	2 student per week	
8	M.Sc.-II	Project	July 2022 To Oct 2022	20	6 Student per project	2- Project Presentation for each group

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Dr. Rajkumar Mathewad

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Department of Mathematics

Structured Work Plan for Teaching

FirstTerm (Jun 2022 to Oct2022)
For PG-I (Sep-2022 to Dec2022)

Name: Vishnu Rajendra Sonwane

1. Details of Classes to be taught

Sr. No.	Class	Semester	Name of Asst. Prof.	Subject	Course Code	Paper	Workload
1	B.Sc.I	I Sem	Mr.V.R.Sonwane	Mathematics	U-MAT-139	Calculus	03
2	B.Sc.III	V Sem			U-MAT-556(A)	Linear Algebra	03
3	B.Sc.III	V Sem			U-MAT-558(A)	Linear Algebra(Lab Course)	06
4	M.Sc I	I Sem			P-THP-163(B)	Theory of probability	06
5	M.Sc II	III Sem			P-COT-368(A)	Classical Mechanics	06
6	M.Sc.-I	I Sem			P-SEM-170	Seminar	01
7	M.Sc.-II	III Sem			P-SEM-371	Seminar	01
8	M.Sc.-II	III Sem			P-PRO-370	Project Guidence(2 Group)	02
						TOTAL	28 Lectures/Week

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4. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane Class : M.Sc.I (I - Semester) Theory of probability Course Code:P-THP-168 Paper-IV

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Mathematics	**Unit I:** Basic Definitions, Mathematical and statistical probability, Subjective Probability, Axiomatic approach to probability, Theorems on probability, Conditional probability, Multiplication theorem of probability of independent events, Examples, Extended axiom of axiom of addition and axiom of continuity, Baye's theorem.	12/09/2022 To 27/09/2022	14	Guest lecture.	Assignment of Unit first before
		Unit II: Random variables, Types , Probability function of discrete random variable, Continuous random variable, Probability density function, Mathematical expectation, Properties of expectation, Variance, Properties of Variance, Moment generating function, Properties of Moment generating function, Cumulants and its	28/09/2022 To 15/10/2022	15	Quiz.	Assignment of Unit Second before

		properties. **Unit III:** Discrete Probability distributions, Binomial distribution, Mean and Variance of binomial distribution, MGF and CGF of Binomial distribution, Fitting of binomial distribution, Poisson distribution, Mean and variance of Poisson distribution, MGF and CGF of Poisson distribution, Fitting of Poisson distribution. **Unit IV:** Normal distribution, Properties of normal distribution, Moments of normal distribution, MGF and CGF and fitting of normal distribution.	07/11/2022 To 29/11/2022 30/11/2022 To 20/12/2022	16 15	SET/NET Workshop Quiz	Assignment of Unit third before. Assignment of Unit fourth before

Course Teacher

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DEPARTMENT OF MATHEMATICS RSML

Shiv Chhatrapati Shikshan Sanstha's

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(Dec-2022 to Mar-2023)

Sr. No.	Class	Name of the Teacher	Subject	Paper
1	B.Sc. I Year	Mr. V. R. Sonwane	Mathematics	Analytical Geometry

Sr. No.	Unit	Unit to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test/ Assignment with topic and date
1	UNIT – I	Change of axes	08 Dec 2022 to 13 Jan 2023	15	Surprise Test	Assignment on unit I
2	UNIT – II	The plane	14 Jan 2023 to 30 Jan 2023	15	Poster Presentation	Assignment on unit II
3	UNIT – III	Right line	31 Jan 2023 to 28 Feb 2023	15	Quiz Competition	Assignment on unit III
4	UNIT – IV	The sphere	01 Mar 2023 to 29 Mar 2023	15	Quiz Competition	Assignment on unit IV

Teacher

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(Dec-2022 to Mar-2023)

2	B.Sc. III Year	Mr. V. R. Sonwane	Mathematics	Theory of Probability

Sr. No.	Unit	Unit to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test/ Assignment with topic and date
1	UNIT – I	Basics of Probability	8 Dec 2022 To 13 Jan 2023	15	Poster Presentation	Assignment on unit I
2.	UNIT – II	Random variables	14 Jan 2023 to 23 Feb 2023	15	IIT-JAM Entrance preparation	Unit Test-I
3	UNIT – III	Discrete Probability distributions	24 Feb 2023 To 29 Mar 2023	15	Quiz Competition	Unit Test-II

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(Dec-2022 to Mar-2023)

3	M.Sc. II year	Mr. V. R. Sonwane	Mathematics	Numerical Analysis

Sr. No.	Unit	Unit to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test/ Assignment with topic and date
1	UNIT – I	Iterative solutions of nonlinear equation	8 Dec 2022 to 31 Dec 2022	20	Surprise Test	Assignment on unit I
2	UNIT – II	Polynomial interpolation	02 Jan 2023 to 21 Jan 2023	15	Quiz	Unit Test-I
3	UNIT – III	Linear systems of Equations	23 Jan 2023 to 02 Feb 2023	10	Solving Exercise problem	Assignment on unit III
4	UNIT – IV	Numerical Calculus	02 Feb 2023 To 29 Mar 2023	15	Seminar	Unit Test-II

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(Dec-2022 to Mar-2023)

2	B.Sc. III Year	Mr. V. R. Sonwane	Mathematics	Theory of Probability(Practical)

Sr. No.	Unit	Practical to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test/ Assignment with topic and date
1	UNIT – I	Practical-1 to Practical-10	8 Dec 2022 To 13 Jan 2023	15	Problem Solving	Homework problems
2	UNIT – II	Practical-11 to Practical-20	14 Jan 2023 to 23 Feb 2023	15		Homework problems
3	UNIT – III	Practical-21 to Practical-30	24 Feb 2023 To 29 Mar 2023	15		Homework problems

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