

**RajarshiShahuMahavidyalaya, Latur**

**( Autonomous )**

**Structured Work Plan for Teaching**

**Second term (Dec 2021 to April 2022)**

**Name: Vishnu Rajendra Sonwane**

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

Sr. No.	Class	Semester	Name of Asst. Prof.	Subject	Course Code	Paper
1	B.Sc.III	VI	Mr.V.R.Sonwane	Mathematics	<b>U-MAT-656(A)</b>	Theory of probability
2	M.Sc.II	IV	Mr.V.R.Sonwane	Mathematics	<b>P-NUA-464(A)</b>	Numerical analysis
1.	M.Sc I Year	II Sem	Mr. V.R.Sonwane	Mathematics	<b>P-LIA-264</b>	Linear Algebra
2.	M.Sc I Year	II Sem	Mr. V.R.Sonwane	Mathematics	<b>P-MIT-265</b>	Measure theory and integration

**1. Summary of Lesson Plan**

**Name of Teacher: V.R.Sonwane**

**Class : B.Sc.III (VI - Semester) Theory Of Probability**

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	<b>Unit-I</b> Basic Definitions, Mathematical and statistical probability, Axiomatic approach to probability, Theorems on probability, Conditional probability with examples, Extended axiom of addition and continuity, Baye"s theorem.	17-12-2021 To 19-01-2022	15	Guest lecture.	Assignment of Unit first before 15 Jan 2022

		<p><b>Unit-II</b> Random variables, Types - discrete random variable, Continuous random variable, probability distribution function, probability density function, Mathematical expectation, Properties of expectation and Variance, Moment generating function, Cumulant generating function, Probability generating function, and its properties.</p>	<p>19-01-2022 To 23-02-2022</p>	15	Quiz.	<p>Assignment of Unit Second before 15 feb 2022</p>
		<p><b>Unit-III</b> Discrete Probability distributions: Binomial distribution, Poisson distribution, Discrete Uniform distribution, Hypergeometric distribution; its Mean and Variance; MGF and CGF of distributions, Fitting of distributions and its applications. Continuous Probability distributions: Normal distribution, Exponential distribution, its properties, Moments and applications.</p>	<p>23-02-2022 To 16-03-2022</p>	15	Seminar.	<p>Assignment of Unit Second before 15 feb 2022</p>

## 2. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane

Class: M.Sc.II(IV- Semester) Numerical Analysis

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: Iterative solutions of nonlinear equation: bisection method. Fixed-point iteration, Newton's method, secant method, acceleration of convergence, Newton's method for two non linear equations, polynomial equation methods.  Unit-II: Polynomial interpolation: interpolation polynomial, divided difference interpolation,	17-12-2021 To 19-01-2022	23	NPTEL online courses	Assignment before 16 Jan 2022
			19-01-2022 To 23-02-2022	26	Quiz.	Assignment before 16 feb 2022



### 3. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane

Class: M.Sc.I (IV- Semester) : Linear Algebra

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	<b>Unit-I:</b> Introduction, Vector spaces, subspaces, Quotient Spaces, Linear combinations and system of linear equations, linear dependence and independence, Bases and dimension, Maximal Linear Independent Subsets.	02-02-2022 To 19-02-2022	16		Assignment of Unit first before 15 Feb 2022
		<b>Unit-II:</b> Linear Transformations, Null spaces, Ranges, The matrix representation of a linear transformation, Composition of linear transformations, Invertibility and Isomorphism, The change of Co-ordinate matrix, Dual spaces.	19-02-2022 To 10-03-2022	15	Quiz.	Assignment of Unit Second before 5 Mar 2022
		<b>Unit-III:</b> Elementary Matrix Operations				

		and elementary matrices, The rank of a matrix, System of linear equations-Theoretical Aspects, System of linear equations-Computational Aspects, Eigen values and Eigen vectors, Diagonalizability, Triangulable Operators, Invariant Subspaces, Cayley-Hamilton Theorem.	10-03-2022 To 26-03-2022	14		Assignment of Unit Second before 22Mar 2022
		<b>Unit-IV:</b> Inner products and Norms, The Gram-Schmidt Orthogonalization process and orthogonal complements, the adjoint of a linear operator, Bilinear forms, Quadratic forms. Jordan Canonical form-I, Jordan Canonical form-II, The Minimal Polynomial, Rational Canonical form.	26-03-2022 To 15-04-2022	15	Seminar.	Assignment of Unit Third before 15 April 2022

## 2. Summary of Lesson Plan

Name of Teacher: V.R.Sonwane


Class: M.Sc.I (IV- Semester) : Measure and integration Theory

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: Lebesgue outer measure, Measurable sets, Measurable functions, Borel and Lebesgue measurability, Integration of non-negative functions, The general integral, Integration of series, Riemann and Lebesgue Integrals, The four derivatives, Continuous non-differentiable functions, Functions of bounded variations, Differentiation and integration.	02-02-2022 To 24-02-2022	20		Assignment of Unit first before 15 Feb 2022

		Unit-II: Abstract measure spaces: Measure and outer measure, Extension of measure, Uniqueness of the extension, Completion of measure, Measure spaces, Integration with respect to measure.	24-02-2022 To 11-03-2022	13		Assignment of Unit Second before 5 Mar 2022
		Unit-III: Signed measure and their derivatives: Signed measure and the Hahn-Decomposition, the Jordan decomposition, the Raydon–Nikodym theorem (Statement only).	11-03-2022 To 25-03-2022	12	Quiz.	Assignment of Unit Second before 22 Mar 2022



		<b>Unit-IV</b> Measure and integration in a product spaces: Measurability in a product spaces, The product measure and Fubini's theorem, Lebesgue measure in Euclidean space.	25-03-2022 To 15-04-2022	15	Seminar.	Assignment of Unit Third before 15 April 2022
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Course Teacher

Mr. Vishnu R. Sonwane

  
HOD

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**PRINCIPAL**

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