Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Department of Mathematics

Structured Work Plan for Teaching

05/07/2021to02/11/2021)

1. Details of Classes to be taught

Sr. No.	Class	Name of Teacher	Subject	Paper
1	B.Sc-III (Sem-V)	Dr:Mahesh S Wavare	Mathematics	Linear Algebra -X
2	B.Sc-III (V)			Lab Course - VII
3	M.Sc-II(Sem-III)			Coding Theory –I-XI
4	M.Sc-II(Sem-III)			Research Project of allocated M.Sc. -II-year students
5	M.Sc-II(Sem-III)			Seminar of Allocated students
6	M.Sc-II(Sem-III)			Research Project of Allotted students

2. Summary of Lesson Plan of U-MAT -556(Paper X) Linear Algebra (Theory)

Name of Teacher: Mahesh S Waware   **Class** : **B.Sc.III(Fifth Semester)**

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	Maths	**Unit I:** 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	05/07/2021 To 21/08/2021	8 8 7	Guest Lecture	Assignment on Unit I
2		**Unit II:** Definition and Examples, Length and distance in inner product space, properties. Cauchy-Schwarz inequality, Properties of Length and distances in inner product space, Angle between	26/08/2021 to	8	Surprise test	Assignment on Unit II

No.	Topic	Date	Periods		
	vectors, orthogonality, Orthogonal and orthonormal bases, co-ordinate relative to orthogonal and orthonormal bases, Gram-Schimdt methods	25/09/2021	7		
3	**Unit III:** 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.	30/09/2021 To 02/11/2021	6 3 3	Guest lecture	Homework Examples

3. Summary of Lesson Plan of Lab Course -VIII(Practical)

Name of Teacher: Mahesh S Wavare

Class : B.Sc.II(Third Semester)

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	Maths	Practical 1 Practical 2 Practical 3 Practical 4 Practical 5 Practical 6 Practical 7 Practical 8 Practical 9 Practical 10 Practical 11 Practical 12	05/07/2021 To 31/08/2021	15	Solving problems	Similar type example for homework
2		Practical 13 Practical 14 Practical 15 Practical 16 Practical 17 Practical 18 Practical 19 Practical 20 Practical 21 Practical 22 Practical 23 Practical 24	01/09/2021 To 31/10/2021	15	Solving problems	Similar type example for homework

4. Summary of Lesson Plan of Coding Theory –II P-COT-364(A)

Name of Teacher: Mahesh S Wavare

Class   : M.Sc. II (Third   Semester)

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		*Unit I:* Error detection, correction and decoding introduction, Communication channels, Maximum livelihood decoding, Hamming distance, nearest neighbor / minimum distance, decoding distance of a code.	05/07/2021 To 30/07/2021	15	Guest Lecture	Home Assignment
2	Maths	*Unit II:* Fields polynomials rings structure of finite fields, minimal polynomials vector spaces over finite fields	31/07/2021 to 25/08/2021	15	Seminar by students	Unit Test -I
3		*Unit –III* Linear codes , Hamming weight bases for linear codes , Generator matrix and parity check matrix, Equivalence of linear codes , Encoding with linear codes , Decoding of linear codes, Cosets nearest neighbor ,decoding for linear codes syndrome decoding	26/08/2021 to 25/09/2021	15		Assignment solve

	Unit-IV			
4	The main coding theory problem lower bounds sphere covering bound Gilber-Varshamav bound hamming bounds and perfect codes, Binary Hamming codes, q-ray Hamming codes	26/09/2021 to 31/10/2021	15	Guest lecture	Homework Examples

Sign of Teaching Staff

(Dr. M . S . Wavare)

Head
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Rajarshi Shahu Mahavidyalaya,
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Principal
PRINCIPAL
Rajarshi Shahu Mahavidyalaya
(Autonomous), Latur

03.7.2021

Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Department of Mathematics

Structured Work Plan for Teaching

21/09/2021 to31/12/2021)

1. Details of Classes to be taught

Sr. No.	Class	Name of Teacher	Subject	Paper
1	B.Sc-I (Sem-I)	Dr.Mahesh S Wavare	Mathematics	Algebra -I
2	B.Sc-I (Sem-I)			Lab Course -I
3	M.Sc-I(Sem-I)			Lab Course -I
4				
5				
6				
7				

Name of Teacher: Mahesh S Wavare

Class :B.Sc.I (First Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures organized	Academic activities to be organized	No. of Test / Assignment with topic and date
1		*Unit III:*Rank of Matrix & Linear Equations				
		Minor of order k, Rank of Matrix, Elementary Rows, column operations, Elementary operations, Inverse of elementary operations. Equivalent Matrices, Row – Echelon Matrix row rank and column rank of a matrix. Linear equations, equivalent system, system of homogeneous and non-homogeneous equations, Characteristic Roots & Caley Hamilton theorem	21/9/21 To 27/10/21	15	Guest Lecture	Assignment on Unit III
2	Maths	*Unit II:*DeMoivre's theorem and Its Applicatio Statement, Roots of Complex number, all values $(\cos\theta + i\sin\theta)^{p/q}$ where p, q being relatively pr numbers, some standard results, Solutions equations, expansion of $\cos n\theta$, $\sin n\theta$, n be positive integer, Expansion of $\tan n\theta$, find	01/11/21 to		Surprise test	Assignment on Unit II

	equation whose roots are given ,expansion $\cos^n \theta$ in terms of cosine of multiple ang expansion of $\sin^n \theta$ in terms of cosine or sines multiple angles of θ according as n is even or integer.	30/11/21			
3	**_Unit 1_Elementary number theory** Mathematical Induction, Well Ordering Principle, Archimedean Property, The Binomial theorem, Pascal's triangle. The Division Algorithm, the Greatest Common Divisor, the Euclidean Algorithm, Basic Properties of Congruences	01/12/21 To 31/12/20 21	15	Guest lecture	Homework Examples

3. Summary of Lesson Plan of Lab Course - I (Practical)

Name of Teacher: Mahesh S Waware   Class : B.Sc. I(First Semester)

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	Maths	Practical 1	21/09/2021	15	MATLAB demos	Similar type example for homework
		Practical 2				
		Practical 3				
		Practical 4				
		Practical 5				
		Practical 6	Section I	To		
		Practical 7				
		Practical 8				
		Practical 9.				
		Practical 10	31/10/2021			
		Practical 11				

2	Practical 1			
	Practical 2			
	Practical 3			
	Practical 4			
	Practical 5			
	Practical 6			
	Practical 7			
	Practical 8			
	Practical 9			
	Practical 10	31/12/2021		
	Practical 11			

Section II

01/11/2021 To 31/12/2021

15

Solving problems

Similar type example for homework

4. Summary of Lesson Plan of Lab Course I P-LAB-170

Name of Teacher: Mahesh S Wavare

Class   : M.Sc. I(First Semester)

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	Maths	*Section I* :Introduction to LaTeX, Installation of LaTeX, Layout Design, LaTeX input files, Inputfile structure, document classes, packages, environments, page styles, Typesetting texts, Fancy Header, tables.	01/10/2021 To 15/11/2021	15	Participation of Students in LATEX training Workshop	
2		*Section II* :Inline math formulas and displayed equations, Math symbols and fonts, Delimeters,matrices, arrays, Typesetting Mathematical formulae: fractions, Integrals, sums, products,etc. Producing Mathematical Graphics.	16/11/2021 to 31/12/2021	15	Hands on Session	

Sign of Teaching Staff

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Department of Mathematics

Structured Work Plan for Teaching

UG-II, III and PG-II 18/12/2021 to 10/04/2022)

UG-I (03/02/2022 to30.04.2022)

PG-I (03/02/2022 to10.05.2022)

1. Details of Classes to be taught

Sr. No.	Class	Name of Teacher	Subject	Paper
1	M.Sc-II (Sem-IV)			Coding Theory -II (P-COT-463)
2	B.Sc-III Sem VI			SEC: Python Programming (U-ADC-640)
3	B.Sc-I Sem-II			Integral Calculus -IV(U-MAT-240)
4	B.Sc-I Sem-II	Dr. Mahesh S Wavare	Mathematics	Lab Course-II(U-MAT-241)
5	M.Sc-I Sem-II			Lab Course-II(P-LAB-269)
6	M.Sc-I,II Sem-II,IV			Seminar Allocated (P_SEM-270)
7	M.Sc-II (Sem-IV)			Project Allocated of M.Sc-II(P-PRW-466and P-SEM-467)
8	B.Sc-III Sem VI			Project Allocated of B.Sc-III(U-PRW-641)

2. Summary of Lesson Plan of P-COT-463 (Paper VII) Coding Theory - II (Theory)

Name of Teacher: Dr. Mahesh S Wavare

Class : M.Sc.II (Fourth Semester)

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		Unit I Bounds in Coding Theory Goley code some remarks on perfect codes singleton bounds and MDS codes, Plotain bound, non linear codes , Hadmand matrix code, Nordstrom-Robinson code , preparata codes	17.12.202	1		
			10.01.202	To	Guest Lecture	Assignment on Unit I
	Maths			2		
				15		
2		Unit II Linear Codes Construction of Linear codes propogation Reed -Mullar codes, Subfield codes	11.01.202	10		
			2		Surprise test	Assignment on Unit II
			To			
			30.01.202			
				2		
3		Unit III Cyclic Codes Definition of cyclic codes, generator polynomial, Generator and parity check matrices, Decoding of cyclic codes, Bust error correcting codes.	3.02.2022	15	Guest lecture	Homework Examples
			To			
			28.02.202			
				2		

| 4 | Unit IV Some special cyclic codes. B.C.H codes, definations, Parameters of B.C.H codes, Decoding of B.C.H codes, Reed Soleman codes, Quadratic rercidue code, Generelised reed – Solemon codes | 01.03.202 2 To 10.04.202 2 | 20 | | |

3. Summary of Lesson Plan of SEC Course on Python Programming -II (Theory and Practical) U-ADc-640 SEC B.Sc-III Maths

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	Maths SEC	Introduction to Python and Basic Concepts in python Introduction to python: What is python? , Applications of Python, Why Python? Installation of python, First program in Python, Comments and Docstrings in Python.Variable and data types, Operators in python. File Handling : working with open, read, write, append modes of file Conditional Statements: Indentation in python, if, if-else, nested if-else statements	01.01.2 022 To 15.02.2 022	15	Guest Lecture	Assignment I
2		Looping Statements, Control statements, Str Manipulations Looping Statements: for loop, w loop , Nested loops Control Statements: bre continue and pass String Manipulations: Access strings, Basic operations, String slices, Functi and methods	16.02.2 022 To 10.04.2 022	15	Surprise test	Assignment II

4. Summary of Lesson Plan of Integral Calculus-IV (Theory)   Maths -IV Course Code : U-MAT 240 B.Sc-I Sem -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		Unit:-I Reiman Integration Introduction, Partition of a closed interval ,Norm of partition, upper and lower Darboux's sums , oscillatory sum, upper and lower Riemann integrals, Riemann integrals , Darboux's theorem ,Necessary and sufficient condition of Inerrability, some classes of bounded integrable functions. Riemann sum integral as the limit of sum, examples using Riemann sum, Properties of Riemann Integral and First Fundamental Theorem of Integral Calculus.	03.02. 20 22 to 30.04. 22	20	Online through Teach Mint APP	Assignment I
2	Maths	Unit:-II Improper Integral Finite and infinite intervals, bounded functio proper integral, Improper integral, impro integral as the limit of proper integral, test convergence of at x=a, general test for converge Cauchy's test, absolute convergent.	02.03. 22 to 30.03. 22	15	Offline and Guest Lecture	
3		Unit-III Beta and Gamma Functions Beta functions, convergence of Beta functio properties of beta function, Gamma funct convergence of gamma functions, recurre formula for gamma function, relation between b and gamma functions (only statements), duplication formula.	03.02. 22 to 28.02. 22	10	Surprise test	Assignment II

5. Summary of Lesson Plan of Lab Course -II (Practical)(UG)   U-MAT -241 Lab Course-II B.Sc.-I Sem II Mathematics

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	Maths	Section -I Practical 1 to Practical 10	04/02/22 to 12.03.22	18	Hands on MATLAB	Assignments
2		Section -II Practical 1 to Practical 10	18.3.22 To 30.04.22	18	Hands on MATLAB	Assignments

6. Summary of Lesson Plan of Lab Course -II (Practical)(PG)

P-LAB-269   Class M.Sc-I Sem 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	Maths	Unit I: Document classes for paper writing, thesis, books, etc. Table of contents, index, bibliography management, hypertext, pdf pages, geometry, fancy header and footer, Verbatim, itemize, enumerate, boxes, equation number. Unit II	03.02.22 to 17.03.22	15	Hands on Session and Creation of Book	--
2		Unit II: Beamer class, beamer theme, fram slides, pause, overlay, transparent, handouts presentation mode	18.03.22 To 10.05.22	15	Hands on Session and Creation of ppt	--

Sign of Teaching Staff

(Dr. M. S. Wavare)

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