Rajarshi Shahu Mahavidyalaya (Autonomous), LaturDepartment of Mathematics
Academic Year : 2021-22
Term-Second(Dec,2021-March,2022)(EVEN)

PG-I & UG-I From 02-02-2022 to 10-05-2022
Name of Assistant Professor : Miss Shivkanya Dinkar Shinde
Subject : Mathematics

1. Details of Classes to be taught

Sr. No.	Class	Course Name	Course Code	(Theory/Practical)
1.	U.G- II	Ring Theory	U-MAT-440	Theory
2.	U.G- II	Laboratory course-VI	U-MAT-442	Practical
3.	P.G-I	Complex Analysis II	P-COV-268	Theory
4.	P.G-II	Field Theory	P-FIT-464	Theory

1.Summary of Lesson Plan for U.G- II : Ring Theory

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.	**Unit I:** Definition and examples of rings, some special classes of rings, Homeomorphisms, Isomorphism	24/12/2021 to 25/01/2021	13		Assignment before 23 jan 2021

2.	**Unit II:** Ideals and quotients rings, More ideals and quotients rings, the field of quotients of an integral domains.	31/01/2022 to 07/03/2022	15		Assigmment before 05 march 2022
3.	**Unit III:** Euclidean rings, A particular Euclidean ring (Ring of Gaussian Integers), Polynomial rings, Polynomial oven the rational fields.	08/03/22 to 12/04 2022	15		Assignment before 10 april 2022

2. Summary of Lesson Plan for P.G-II : Field Theory

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.	**Unit-I:Introduc-tion**Definition and examples of fields, Mini-mal polynomial, adjoining elements, irreducible poly-nomial,The Schoneman-Eisenstein criterion,	24/12/2021 to 10/01/2022	14		Assignment before 05 jan 2022

2.	**Unit-II: Fields Extension** Prime radicals, the degree of extension, Finite Extensions, The Tower theorem, Algebraic extension.	11/01/2022 to 29/01/2022	15		Assignment before 28 jan 2022
3.	**Unit-III Normal and Separable** extension Splitting fields Definition and examples, Uniqueness of splitting fields, Normal extensions, Separable extension, Fields of characteristiczero, Fields of characteris-tic p,Theorem of primitive element.	31/01/2022 to 23/02/2022	20		Assignment before 20 feb 2022
	Unit-IV: The Galois Group Definition of the Galois Group, Galois group of splitting fields, Permutations of the roots,TheUniversal Extension,a polynomial of degree 5.	24/02/2022 to 14/03/2022	15		seminar

3.Summary of Lesson Plan for P.G-I : Complex Analysis 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.	**Unit I** . Power series, Analytic functions, Branch of a logarithm, Mobius(Bilinear) Transformations and Conformal Mappings Power Series representation of analytic functions, Taylor' s Theorem, Cauchy' s Estimate, Zeros of an analytic function, Louville' s Theorem, Fundamental Theorem of Algebra, Maximum Modulus Theorem	02/02/2022 to 18/02/2022	15		Assignment before 15 feb 2022
2.	**Unit II** . Index of a closed curve, Cauchy' s Theorem, Cauchy' s Integral Formula, Higher Order derivatives, Morera' s Theorem, The Homotopic version of Cauchy' s Theorem and simple connectivity, Counting of Zeros, The Open mapping Theorem, Goursat' s theorem.	21/02/2022 to 10/03/2022	15		Assignment before 05 march 2022
3.	**Unit-III:** Singularities, Classification of Singularities, Laurent' s Series, Casorati-Weierstrass Theorem, Residues, Cauchy' s Residue Theorem, Evaluation of Integrals, Meromorphic functions, The Arument Principle, Rouche' Theorem, Schwartz Lemma	11/03/2022 to 05/04/2022	20		Assignment before 05 april 2022

4.	**Unit-IV:** Convex Functions and Hadamard' s three Circles Theorem, The Space of continuous Functions, Spaces of Analytic Functions, The Riemann mapping Theorem	06/04/2022 to 23/04/2022	15		seminar

Course Teacher
Miss. S.D. Shinde

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