RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2019-20(Even Semester)

Class and Section: M.Sc.Math - 2nd Sem.

Subject: Communication skills and Personality Development

Name of the Faculty : Mr. Sushil kumar

Week	Lecture	Date	Topics
	1	16-Jan-20	Introduction to Syllabus, Scheme of Exam &
	2		Learning Objectives/Outcomes
	3	22-Jan-20	Some basics of grammar
	4	23-Jan-20	Writing skills
	5	29-Jan-20	Unit 1 complete
	6	30-Jan-20	
	7	05-Feb-20	Unit 2 33% complete
	8	06-Feb-20	Unit 2 66% complete
	9	12-Feb-20	unit 2 complete
	10	13-Feb-20	Doubt session
	11	19-Feb-20	**Test**
	12	20-Feb-20	Question paper discussion
	13		
	14	26-Feb-20	Unit 3 (33%+33%) 66% complete
	15	27-Feb-20	
	16	04-Mar-20	unit 3 complete
	17	05-Mar-20	Doubt session
	18	11-Mar-20	Unit 4 (33%+33%)66% complete
	19	12-Mar-20	
	20	18-Mar-20	Unit 4 complete
	21	19-Mar-20	Doubt session
	22	25-Mar-20	**Test**
	23	01-Apr-20	Question paper discussion
	24	08-Apr-20	Revision
	25	09-Apr-20	Revision
	26	15-Apr-20	Revision
	27	16-Apr-20	Revision
	20th - 24th April 20		Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Class and Section:M.sc 2nd sem (A+B)

Subject: Measure and integration Theory

Name of the Faculty :Mr. Arvind

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Set function , Intutive idea of Measure , elementary properties of measure,
2	5	27/01/20 to 31/01/20	Algebra of measurable sets , Borel Sets
3	5	03/02/20 to 07/02/20	measurability of Borel Sets , Countable additivity of lebesgue measure
4	5	10/02/20 to 14/02/20	theorem on lebesgue measure ,equivalent formulation of measurable sets in form of open sets
5	5	17/02/20 to 21/02/20	Measurable function and their properties, approximation of measurable function by a sequence of simple function
6			1st Class Test
7	5	24/02/20 to 28/02/20	measurable functions as nearly continuous function, Egoroff's theorem
8	5	02/03/20 to 06/03/20	lustin theorem , convergence in measure. F.riesz theorem for convergence in measure
9	5	09/03/20 to 13/03/20	Shortcomings of Riemann integral , Lebesgue integral of a bounded funcion over a set of finite measureand its properties, Lebesgue integral as a generalisation of Riemann integral , Bounded convergence theorem
10			
11	5	16/03/20 to 20/03/20	Integral of non negative function, Fatou's lemma , Monotone convergence theorem , general Lebesgue Integal
12	5	23/03/20 to 27/03/20	Lebesgue convergence theorem, Vitali;s covering lemma , Differentation of monotonic function,
13	5	06/04/20 to 10/04/20	Function of bounded variation and their representation as difference of monotonic function,
14	5	30/03/20 to 03/04/20	Differentation of indefinite integral , fundamental theorem of calclus ,
15	5	13/04/20 to 17/04/20	Absolutely continuous function and their properties , Jensen;s inequality
16			Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21 (Even Semester)

Class and Section: M.Sc. Mathematics 2nd sem A

Subject: 17MAT22CC1, Field Extensions and Galois Theory

Name of the Faculty : Mr. YP Singh

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Basic definitions and examples
2	5	27/01/20 to 31/01/20	Fields, Prime fields, Finite field extensions
3	5	03/02/20 to 07/02/20	Degree of field extensions, Simple Extensions, Algebraic extensions
4	5	10/02/20 to 14/02/20	Splitting fields, Algebraically closed fields.
5	5	17/02/20 to 21/02/20	Separable and inseparable extensions, Perfect fields.
6			1st Class Test
7	5	24/02/20 to 28/02/20	Monomorphisms and their linear independence, Automorphism of fields, Fixed fields
8	5	02/03/20 to 06/03/20	Normal extensions, The fundamental theorem of Galois theory.
9	5	09/03/20 to 13/03/20	Finite fields, Existence of GF(pn), Construction of finite fields
10			2nd Class Test
11	5	16/03/20 to 20/03/20	Primitive elements, Langrage's theorem on primitive elements
12	5	23/03/20 to 27/03/20	Roots of unity, Cyclotomic polynomials, Cyclotomic extensions of rational number field.
13	5	06/04/20 to 10/04/20	Solutions by radicals, Extension by radicals,
14	5	30/03/20 to 03/04/20	Generic polynomial, Insolvability of the general polynomial of degree n 5 by radicals
15	5	13/04/20 to 17/04/20	Ruler and compasses construction.
16			Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21 (Even Semester)

Class and Section: M.Sc. Math 2nd Sem A

Subject: General Topology

Name of the Faculty : Rakesh Kumar

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Definition and examples of topological spaces, Comparison of topologies on a set, Intersection and union of topologies on a set, Limit point of a set, Derived set
2	5	27/01/20 to 31/01/20	Closed set, Closure of a set, Kuratowski closure axioms, Closure operator, Dense sets, Interior point and Interior of a set, Interior axioms, Exterior of a set, Exterior axioms, Boundary of a set
3	5	03/02/20 to 07/02/20	Interior, exterior and boundary operators, Neighborhoods, Alternative methods of defining a topology in terms of neighborhood system and Kuratowski closure operator.
4	5	10/02/20 to 14/02/20	Relative (Induced) topology, Base and subbase for a topology, Base for neighbourhood system.
5	5	17/02/20 to 21/02/20	Relative (Induced) topology, Base and subbase for a topology, Base for neighbourhood system.
6			1st Class Test
7	5	24/02/20 to 28/02/20	Connectedness and its characterization, Connected subsets and their properties, Continuity and connectedness, Components, Locally connected spaces.
8	5	02/03/20 to 06/03/20	Separation axioms: T0, T1, T2-spaces, their characterization and basic properties, T2-spaces and sequences.
9	5	09/03/20 to 13/03/20	First countable, Second countable and Separable spaces, Hereditary and topological property
10			2nd Class Test
11	5	16/03/20 to 20/03/20	First countable, Second countable and Separable spaces, Hereditary and topological property
12	5	23/03/20 to 27/03/20	Countability of a collection of disjoint open sets in separable and second countable spaces, Lindel¨of theorem.
13	5	06/04/20 to 10/04/20	Compact spaces and subsets, Compactness in terms of finite intersection property,
14	5	30/03/20 to 03/04/20	Basic properties of compactness, Closedness of compact subset of a Hausdorff space and of a continuous map from a compact space into a Hausdorff and its consequence.
15	5	13/04/20 to 17/04/20	Sequentially and Countably compact spaces, Locally compact spaces and One point compactification.
16			Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21 (Even Semester)

Class and Section: M.Sc. Math 2nd Sem A

Subject: Integral equation and Calculus of variation

Name of the Faculty : Rakesh Kumar

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Linear Integral equations, Some basic identities, Initial value problems reduced to Volterra integral equations, Methods of successive substitution
2	5	27/01/20 to 31/01/20	successive approximation to solve Volterra integral equations of second kind, Iterated kernels and Neumann series for Volterra equations
3	5	03/02/20 to 07/02/20	Resolvent kernel as a series, Laplace transform method for a difference kernel, Solution of a Volterra integral equation of the first kind.
4	5	10/02/20 to 14/02/20	Boundary value problems reduced to Fredholm integral equations, Methods of successive approximation and successive substitution to solve Fredholm equations of second kind
5	5	17/02/20 to 21/02/20	Iterated kernels and Neumann series for Fredholm equations, Resolvent kernel as a sum of series, Fredholm resolvent kernel as a ratio of two series,
6			1st Class Test
7	5	24/02/20 to 28/02/20	Fredholm equations with separable kernels, Approximation of a kernel by a separable kernel, Fredholm Alternative, Non homogeneous Fredholm equations with
8	5	02/03/20 to 06/03/20	Green's function, Use of method of variation of parameters to construct the Green's function for a non-homogeneous linear second order boundary value problem
9	5	09/03/20 to 13/03/20	Basic four properties of the Green's function, Alternate procedure for construction of the Green's function by using its basic four properties.
10			2nd Class Test
11	5	16/03/20 to 20/03/20	Reduction of a boundary value problem to a Fredholm integral equation with kernel as Green's function, Hilbert-Schmidt theory for symmetric kernels.
12	5	23/03/20 to 27/03/20	Motivating problems of calculus of variations, Shortest distance, Minimum surface of resolution
13	5	06/04/20 to 10/04/20	Motivating problems of calculus of variations, Shortest distance, Minimum surface of resolution
14	5	30/03/20 to 03/04/20	Motivating problems of calculus of variations, Shortest distance, Minimum surface of resolution
15	5	13/04/20 to 17/04/20	Conditional extremum under geometric constraints and under integral constraints.
16			Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21 (Even Semester)

Class and Section: M.Sc. Mathematics 2nd sem A+B

Subject: 17MAT22CC1, Field Extensions and Galois Theory

Name of the Faculty : Mr. YP Singh

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Basic definitions and examples
2	5	27/01/20 to 31/01/20	Fields, Prime fields, Finite field extensions
3	5	03/02/20 to 07/02/20	Degree of field extensions, Simple Extensions, Algebraic extensions
4	5	10/02/20 to 14/02/20	Splitting fields, Algebraically closed fields.
5	5	17/02/20 to 21/02/20	Separable and inseparable extensions, Perfect fields.
6			1st Class Test
7	5	24/02/20 to 28/02/20	Monomorphisms and their linear independence, Automorphism of fields, Fixed fields
8	5	02/03/20 to 06/03/20	Normal extensions, The fundamental theorem of Galois theory.
9	5	09/03/20 to 13/03/20	Finite fields, Existence of GF(pn), Construction of finite fields
10			2nd Class Test
11	5	16/03/20 to 20/03/20	Primitive elements, Langrage's theorem on primitive elements
12	5	23/03/20 to 27/03/20	Roots of unity, Cyclotomic polynomials, Cyclotomic extensions of rational number field.
13	5	06/04/20 to 10/04/20	Solutions by radicals, Extension by radicals,
14	5	30/03/20 to 03/04/20	Generic polynomial, Insolvability of the general polynomial of degree n 5 by radicals
15	5	13/04/20 to 17/04/20	Ruler and compasses construction.
16			Final Sessional Test

RPS Degree College, Balana (Mahendergarh)

Lesson Plan

2020-21 (Even Semester)

Class and Section: M.Sc. Math 2nd Sem B

Subject: General Topology

Name of the Faculty : Rakesh Kumar

Week	Lecture	Date	Topics
1	7	16/01/20 to 24/01/20	Definition and examples of topological spaces, Comparison of topologies on a set, Intersection and union of topologies on a set, Limit point of a set, Derived set
2	5	27/01/20 to 31/01/20	Closed set, Closure of a set, Kuratowski closure axioms, Closure operator, Dense sets, Interior point and Interior of a set, Interior axioms, Exterior of a set, Exterior axioms, Boundary of a set
3	5	03/02/20 to 07/02/20	Interior, exterior and boundary operators, Neighborhoods, Alternative methods of defining a topology in terms of neighborhood system and Kuratowski closure operator.
4	5	10/02/20 to 14/02/20	Relative (Induced) topology, Base and subbase for a topology, Base for neighbourhood system.
5	5	17/02/20 to 21/02/20	Relative (Induced) topology, Base and subbase for a topology, Base for neighbourhood system.
6			1st Class Test
7	5	24/02/20 to 28/02/20	Connectedness and its characterization, Connected subsets and their properties, Continuity and connectedness, Components, Locally connected spaces.
8	5	02/03/20 to 06/03/20	Separation axioms: T0, T1, T2-spaces, their characterization and basic properties, T2-spaces and sequences.
9	5	09/03/20 to 13/03/20	First countable, Second countable and Separable spaces, Hereditary and topological property
10			2nd Class Test
11	5	16/03/20 to 20/03/20	First countable, Second countable and Separable spaces, Hereditary and topological property
12	5	23/03/20 to 27/03/20	Countability of a collection of disjoint open sets in separable and second countable spaces, Lindel¨of theorem.
13	5	06/04/20 to 10/04/20	Compact spaces and subsets, Compactness in terms of finite intersection property,
14	5	30/03/20 to 03/04/20	Basic properties of compactness, Closedness of compact subset of a Hausdorff space and of a continuous map from a compact space into a Hausdorff and its consequence.
15	5	13/04/20 to 17/04/20	Sequentially and Countably compact spaces, Locally compact spaces and One point compactification.
16			Final Sessional Test