

**Lesson Plan**

**Name of Assistant Professor** : **Shweta Dhawan**  
**Class and Section** : **B.A/ B.Sc ( I ) (Sem-I)**  
**Subject** : **Mathematics**  
**Paper** : **BM-111**  
**From July-November 2018**

<b>Week 1</b>	
Week 1, Day 1 16/07/2018	<i>Inaugural Hawan</i>
Week 1, Day 2 17/07/2018	Definition of Different Types of matrices.
Week 1, Day 3 18/07/2018	Transpose & Transpose conjugate of matrix.
Week 1, Day 4 19/07/2018	Adjoint of a square matrix.
Week 1, Day 5 20/07/2018	Inverse of a square matrix.
Week 1, Day 6 21/07/2018	Singular and Non-Singular matrices.
<b>Week 2</b>	
Week 2, Day 1 23/07/2018	Solution of System of linear equations.
Week 2, Day 2 24/07/2018	Define symmetric & skew-symmetric matrices.
Week 2, Day 3 25/07/2018	Define Hermitian & skew- Hermitian matrices.
Week 2, Day 4 26/07/2018	Properties and examples of matrices.
Week 2, Day 5 27/07/2018	Orthogonal matrix.
Week 2, Day 6 28/07/2018	Unitary matrix.
<b>Week 3</b>	
Week 3, Day 1 30/07/2018	Properties of orthogonal & unitary matrices.
Week 3, Day 2 31/07/2018	<i>Shaheed Udham Singh martyrs' Day</i>
Week 3, Day 3 01/08/2018	Define Rank of a matrix.
Week 3, Day 4 02/08/2018	Row Equivalent matrix.
Week 3, Day 5 03/08/2018	Column Equivalent matrix.
Week 3, Day 6 04/08/2018	Row-Echelon matrix.

<b>Week 4</b>	
Week 1, Day 1 06/08/2018	Column- Echelon matrix.
Week 4, Day 2 07/08/2018	Row rank and column rank of matrix.
Week 4, Day 3 08/08/2018	Reduction of matrix to Triangular form.
Week 4, Day 4 09/08/2018	Define Normal form of a matrix.
Week 4, Day 5 10/08/2018	Examples of normal form.
Week 4, Day 6 11/08/2018	Non-singular matrices in normal form.
<b>Week 5</b>	
Week 5, Day 1 13/08/2018	<i>Teej</i>
Week 5, Day 2 14/08/2018	Linear Dependence & Independence of column matrices.
Week 5, Day 3 15/08/2018	<i>Independence Day</i>
Week 5, Day 4 16/08/2018	Linear Dependence & Independence of column matrices.
Week 5, Day 5 17/08/2018	Theorems of linear Dependence & Independence.
Week 5, Day 6 18/08/2018	Define characteristic matrix and equation.
<b>Week 6</b>	
Week 6, Day 1 20/08/2018	Define characteristic roots.
Week 6, Day 2 21/08/2018	Spectrum of a matrix
Week 6, Day 3 22/08/2018	<i>Id</i>
Week 6, Day 4 23/08/2018	Examples related to characteristic roots.
Week 6, Day 5 24/08/2018	Define characteristic vector.
Week 6, Day 6 25/08/2018	Examples related to characteristic vectors.
<b>Week 7</b>	
Week 7, Day 1 27/08/2018	Define Scalar Polynominal.
Week 7, Day 2 28/08/2018	Define matrix polynominal.
Week 7, Day 3 29/08/2018	Cayley-Hamilton throrem.

Week 7, Day 4 30/08/2018	Discuss examples of Cayley-Hamilton theorem.
Week 7, Day 5 31/08/2018	Some theorems on characteristic roots.
Week 7, Day 6 01/09/2018	Some theorems on characteristic vectors.
<b>Week 8</b>	
Week 8, Day 1 03/09/2018	<i>Janamashtmi</i>
Week 8, Day 2 04/09/2018	Miminal & Monic Polynomials.
Week 8, Day 3 05/09/2018	<i>Talent Show (Tentative)</i>
Week 8, Day 4 06/09/2018	Derogatory & Non-Derogatory Matrices.
Week 8, Day 5 07/09/2018	System of Non-Homogeneous Linear equations.
Week 8, Day 6 08/09/2018	System of Homogeneous Linear equations..
<b>Week 9</b>	
Week 9, Day 1 10/09/2018	Method to write matrix of Bilinear form.
Week 9, Day 2 11/09/2018	Method to write matrix of Quadratic form.
Week 9, Day 3 12/09/2018	Diagonalization of a quadratic form.
Week 9, Day 4 13/09/2018	Discuss index, signature & Rank of quadratic form.
Week 9, Day 5 14/09/2018	Positive definite & Semi-definite form.
Week 9, Day 6 15/09/2018	Negative definite & Semi- definite form.
<b>Week 10</b>	
Week 10, Day 1 17/09/2018	Sylvester's Criterion for positive definiteness.
Week 10, Day 2 18/09/2018	Remainder & factor theorem for roots.
Week 10, Day 3 19/09/2018	Synthetic Division with examples.
Week 10, Day 4 20/09/2018	Fundamental theorem of Algebra.
Week 10, Day 5 21/09/2018	Rational & Irrational Roots.
Week 10, Day 6 22/09/2018	Common Roots of two equations.

<b>Week 11</b>	
Week 11, Day 1 24/09/2018	Equal roots of an equation.
Week 11, Day 2 25/09/2018	Multiple roots of an equation.
Week 11, Day 3 26/09/2018	Roots with signs changed
Week 11, Day 4 27/09/2018	Roots multiplied by a given number.
Week 11, Day 5 28/09/2018	<i>Sessionals (Tentative)</i>
Week 11, Day 6 29/09/2018	<i>Sessionals (Tentative)</i>
<b>Week 12</b>	
Week 12, Day 1 01/10/2018	<i>Sessionals (Tentative)</i>
Week 12, Day 2 02/10/2018	<i>Gandhi Jayanti</i>
Week 12, Day 3 03/10/2018	<i>Sessionals (Tentative)</i>
Week 12, Day 4 04/10/2018	<i>Sessionals (Tentative)</i>
Week 12, Day 5 05/10/2018	Reciprocal roots and reciprocal equation.
Week 12, Day 6 06/10/2018	Roots diminished by a given number.
<b>Week 13</b>	
Week 13, Day 1 08/10/2018	Transformation of the Cubic equation.
Week 13, Day 2 09/10/2018	Transformation of the biquadratic equation.
Week 13, Day 3 10/10/2018	<i>Aggarsen Jayanti</i>
Week 13, Day 4 11/10/2018	Equations of squared differences of a cubic.
Week 13, Day 5 12/10/2018	Discuss, equations of diminishing by a root.
Week 13, Day 6 13/10/2018	Cardan's Method.
<b>Week 14</b>	
Week 14, Day 1 15/10/2018	Discuss nature of roots of cubic equation.
Week 14, Day 2 16/10/2018	Irreducible cases of Cardan's method.
Week 14, Day 3 17/10/2018	Examples of cardan's method.

Week 14, Day 4 18/10/2018	<i>Dussehra</i>
Week 14, Day 5 19/10/2018	Descarte's solution of the Biquadratic equations.
Week 14, Day 6 20/10/2018	Discuss Descarte's examples.
<b>Week 15</b>	
Week 15, Day 1 22/10/2018	Define Ferrari's method.
Week 15, Day 2 23/10/2018	Working rule for Ferrai's method.
Week 15, Day 3 24/10/2018	<i>Valmiki Jayanti</i>
Week 15, Day 4 25/10/2018	Examples of Ferrari's method.
Week 15, Day 5 26/10/2018	Continuation & permanence of signs.
Week 15, Day 6 27/10/2018	<i>KarvaChauth</i>
<b>Week 16</b>	
Week 16, Day 1 29/10/2018	Define complete equation.
Week 16, Day 2 30/10/2018	Descarte's Rule of sings.
Week 16, Day 3 31/10/2018	Find real roots of an equation.
Week 16, Day 4 01/11/2018	<i>Haryana Day</i>
Week 16, Day 5 02/11/2018	Find positive and negative roots.
Week 16, Day 6 03/11/2018	Find complex roots of a equation.
<b>Week 17</b> 04-11/11/2018	<i>Diwali Break</i>
<b>Week 18</b> 12-15/11/2018	<i>Revision/Preparatory Holidays</i>

## Lesson Plan

Name of Assistant Professor: Shweta Dhawan

Class and Section : B.A/B.Sc (Third Semester)

Subject : Mathematics

Paper : BM-232

From July-November 2018

<b>Week 1</b>	
Week 1, Day 1 16/07/2018	<i>Inaugural Hawan</i>
Week 1, Day 2 17/07/2018	Introduction to the partial differential equation, order and degree of a P.D.E , linear and non linear P.D.E
Week 1, Day 3 18/07/2018	Formation of P.D.E by the elimination of arbitrary constants and related examples
Week 1, Day 4 19/07/2018	Formation of P.D.E by the elimination of arbitrary functions and related examples
Week 1, Day 5 20/07/2018	Discussion on students problems regarding previous lectures
Week 1, Day 6 21/07/2018	Classification of the solution of P.D.E
<b>Week 2</b>	
Week 2, Day 1 23/07/2018	Lagrange's linear equations and working rule to solve these first order linear P.D.E by by Lagrange's method
Week 2, Day 2 24/07/2018	Lagrange's method and related examples
Week 2, Day 3 25/07/2018	Lagrange's method and related examples..continued
Week 2, Day 4 26/07/2018	Lagrange's method and related examples...continued
Week 2, Day 5 27/07/2018	Charpits general method to find solution of first order (linear and non linear ) P.D.E and related examples
Week 2, Day 6 28/07/2018	Examples based on Charpits general method
<b>Week 3</b>	
Week 3, Day 1 30/07/2018	Examples based on Charpits general method
Week 3, Day 2 31/07/2018	<i>Shaheed Udham Singh Martyrs' day</i>
Week 3, Day 3 01/08/2018	Some standard forms of first order (linear and non linear ) P.D.E and their solution by Charpits general method
Week 3, Day 4 02/08/2018	Some standard forms of first order (linear and non linear ) P.D.E and their solution by Charpits general method...continued
Week 3, Day 5 03/08/2018	Some standard forms of first order (linear and non linear ) P.D.E and their solution by Charpits general method...continued
Week 3, Day 6 04/08/2018	Jacobi method to find solution of first order (linear and non linear ) P.D.E and related examples
<b>Week 4</b>	
Week 4, Day 1 06/08/2018	Examples based on Jacobi method
Week 4, Day 2 07/08/2018	Examples based on Jacobi method
Week 4, Day 3 08/08/2018	Discussion on students problems regarding previous lectures
Week 4, Day 4	Class Test

09/08/2018	
Week 4, Day 5 10/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with constant coefficients and related examples
Week 4, Day 6 11/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with constant coefficients and related examples
<b>Week 5</b>	
Week 5, Day 1 13/08/2018	<i>Teej</i>
Week 5, Day 2 14/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with constant coefficients and related examples
Week 5, Day 3 15/08/2018	<i>Independence Day</i>
Week 5, Day 4 16/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with constant coefficients and related examples
Week 5, Day 5 17/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with variable coefficients and related examples
Week 5, Day 6 18/08/2018	Solution of linear homogeneous or non homogeneous P.D.E of order n with variable coefficients and related examples
<b>Week 6</b>	
Week 6, Day 1 20/08/2018	Students problems on the above topics
Week 6, Day 2 21/08/2018	Students problems on the above topics
Week 6, Day 3 22/08/2018	<i>Id</i>
Week 6, Day 4 23/08/2018	Group Discussion on solution of linear homogeneous or non homogeneous P.D.E of order n
Week 6, Day 5 24/08/2018	Class test
Week 6, Day 6 25/08/2018	Classification of second order linear P.D.E and related examples
<b>Week 7</b>	
Week 7, Day 1 27/08/2018	Reduction of second order linear P.D.E to canonical forms
Week 7, Day 2 28/08/2018	Reduction of second order linear P.D.E to canonical forms...continued
Week 7, Day 3 29/08/2018	Reduction of second order linear P.D.E to canonical forms... continued
Week 7, Day 4 30/08/2018	Reduction of second order linear P.D.E to canonical forms... continued
Week 7, Day 5 31/08/2018	Students problems on the above topics
Week 7, Day 6 01/09/2018	Students problems on the above topics
<b>Week 8</b>	
Week 8, Day 1 03/09/2018	<i>Janamashmti</i>
Week 8, Day 2 04/09/2018	Monge's method for P.D.E of second order
Week 8, Day 3 05/09/2018	<i>Talent Show (Tentative)</i>
Week 8, Day 4 06/09/2018	Monge's method for P.D.E of second order...continued
Week 8, Day 5	Monge's method for P.D.E of second order...continued

07/09/2018	
Week 8, Day 6 08/09/2018	Monge's method for P.D.E of second order....continued
<b>Week 9</b>	
Week 9, Day 1 10/09/2018	Students problems on the above topics
Week 9, Day 2 11/09/2018	Students problems on the above topics
Week 9, Day 3 12/09/2018	Power point presentation
Week 9, Day 4 13/09/2018	Characteristics equations and Characteristics curves of second order P.D.E
Week 9, Day 5 14/09/2018	Characteristics equations and Characteristics curves of second order P.D.E...continued
Week 9, Day 6 15/09/2018	Cauchy's problem for the second order P.D.E
<b>Week 10</b>	
Week 10, Day 1 17/09/2018	Cauchy's problem for the second order P.D.E...continued
Week 10, Day 2 18/09/2018	Cauchy's problem for the second order P.D.E...continued
Week 10, Day 3 19/09/2018	Three types of linear second order P.D.E Wave equation, heat equation, Laplace equation
Week 10, Day 4 20/09/2018	Principle of superposition
Week 10, Day 5 21/09/2018	Solution of one dimensional wave equation by method of separation of variables
Week 10, Day 6 22/09/2018	Solution of one dimensional wave equation satisfying the given boundary and initial conditions and related examples
<b>Week 11</b>	
Week 11, Day 1 24/09/2018	Solution of one dimensional wave equation satisfying the given boundary and initial conditions and related examples...continued
Week 11, Day 2 25/09/2018	Students problems on the above topics
Week 11, Day 3 26/09/2018	Students problems on the above topics
Week 11, Day 4 27/09/2018	Solution of two dimensional wave equation by method of separation of variables
Week 11, Day 5 28/09/2018	<b>Sessionals (Tentative)</b>
Week 11, Day 6 29/09/2018	<b>Sessionals (Tentative)</b>
<b>Week 12</b>	<b>Sessionals (Tentative)</b>
Week 12, Day 1 01/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 2 02/10/2018	<i>Gandhi Jayanti</i>
Week 12, Day 3 03/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 4 04/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 5 05/10/2018	Solution of two dimensional wave equation satisfying the given boundary and initial conditions and related examples
Week 12, Day 6	Solution of two dimensional wave equation satisfying the given boundary



06/10/2018	and initial conditions and related examples...continued
<b>Week 13</b>	
Week 13, Day 1 08/10/2018	Students problems on the above topics
Week 13, Day 2 09/10/2018	Students problems on the above topics
Week 13, Day 3 10/10/2018	<i>Aggarsen Jayanti</i>
Week 13, Day 4 11/10/2018	Solution of one dimensional heat equation by method of separation of variables
Week 13, Day 5 12/10/2018	Solution of one dimensional heat equation satisfying the given boundary and initial conditions and related examples
Week 13, Day 6 13/10/2018	Solution of one dimensional heat equation satisfying the given boundary and initial conditions and related examples...continued
<b>Week 14</b>	
Week 14, Day 1 15/10/2018	Students problems on the above topics
Week 14, Day 2 16/10/2018	Solution of two dimensional heat equation by method of separation of variables
Week 14, Day 3 17/10/2018	Solution of two dimensional heat equation satisfying the given boundary and initial conditions and related examples
Week 4, Day 4 18/10/2018	<i>Dussehra</i>
Week 14, Day 5 19/10/2018	Solution of two dimensional heat equation satisfying the given boundary and initial conditions and related examples...continued
Week 14, Day 6 20/10/2018	Students problems on the above topics
<b>Week 15</b>	
Week 15, Day 1 22/10/2018	Solution of two dimensional Laplace equation by method of separation of variables
Week 15, Day 2 23/10/2018	Solution of two dimensional Laplace equation satisfying the given boundary and initial conditions and related examples
Week 15, Day 3 24/10/2018	<i>Valmiki Jayanti</i>
Week 15, Day 4 25/10/2018	Solution of two dimensional Laplace equation satisfying the given boundary and initial conditions and related examples...continued
Week 15, Day 5 26/10/2018	Solution of two dimensional Laplace equation satisfying the given boundary and initial conditions and related examples...continued
Week 15, Day 6 27/10/2018	<i>KarvaChauth</i>
<b>Week 16</b>	
Week 16, Day 1 29/10/2018	Solution of two dimensional Laplace equation satisfying the given boundary and initial conditions and related examples...continued
Week 16, Day 2 30/10/2018	Solution of two dimensional Laplace equation satisfying the given boundary and initial conditions and related examples...continued
Week 16, Day 3 31/10/2018	Students problems on the above topics
Week 16, Day 4 01/11/2018	<i>Haryana Day</i>
Week 16, Day 5 02/11/2018	Students problems on the above topics
Week 16, Day 6 03/11/2018	Students problems on the above topics
<b>Week 17</b>	<b>Diwali Break</b>

04-11/11/2018	
<b>Week 18</b>	<b>Revision</b>
Week 18, Day 1 12/11/2018	Revision of Syllabus
Week 16, Day 2 13/11/2018	Revision of Syllabus
Week 16, Day 3 14/11/2018	Revision of Syllabus
Week 16, Day 4 15/11/2018	Revision of Syllabus

# LESSON PLAN

Name of Assistant Professor: Mrs. SHWETA DHAWAN

Class : BSc / B.A. - III

SEMSTER : V

Subject : MATHEMATICS (GROUPS AND RINGS)

PAPER

: BM- 352

From July-November 2018

<b>Week 1</b>	<b>GROUPS AND SUBGROUPS:</b>
Week 1, Day 1 16/07/2018	<i>Inaugural Hawan</i>
Week 1, Day 2 17/07/2018	Binary operation, properties of binary operation, Definition of GROUP, SemiGroup, Finite and Infinite Group, Order of a Group
Week 1, Day 3 18/07/2018	Examples based on Group.
Week 1, Day 4 19/07/2018	Examples continued, General properties of Groups, Cancellation Laws.
Week 1, Day 5 20/07/2018	Examples, Order of an element of a Group, Theorems based on order of an element of a Group.
Week 1, Day 6 21/07/2018	Theorems and Examples based on order of an element of a Group.
<b>Week 2</b>	<b>CYCLIC GROUPS:</b>
Week 2, Day 1 23/07/2018	Complexes And subgroups of a Group, Definition of Subgroup, Theorems based on Subgroup.
Week 2, Day 2 24/07/2018	Theorems continued and Examples based on subgroup of a Group.
Week 2, Day 3 25/07/2018	Cyclic Groups, Some theorems on Cyclic Group.
Week 2, Day 4 26/07/2018	Examples based on Cyclic Group, Definition of a Coset of a Group.
Week 2, Day 5 27/07/2018	Definition of Right Coset and Left Coset of a Group, Theorems on Cosets.
Week 2, Day 6 28/07/2018	Examples based on Coset, Definition of index of a subgroup in a Group.
<b>Week 3</b>	<b>NORMAL SUBGROUP AND QUOTIENT GROUP:</b>
Week 3, Day 1 30/07/2018	Langrange's Theorem, Some other theorems based on order of an element.
Week 3, Day 2 31/07/2018	<i>Shaheed Udham Singh Martyrs' day</i>

Week 3, Day 3 01/08/2018	Test of Group, Subgroup and Cosets.
Week 3, Day 4 02/08/2018	Definition Of Normal Subgroup, Simple Subgroup, Some Theorems On Normal Subgroup.
Week 3, Day 5 03/08/2018	Definition of Quotient Group, Theorems on Quotient Groups.
Week 3, Day 6 04/08/2018	GROUP DISCUSSION ON Group, Subgroup, Coset, Normal Subgroup, Quotient Group.
<b>Week 4</b>	<b>HOMOMORPHISMS AND ISOMORPHISMS OF GROUPS</b>
Week 4, Day 1 06/08/2018	Homomorphisms Of Groups, Isomorphisms Of Groups, Isomorphic Groups, Some Theorems On Homomorphisms.
Week 4, Day 2 07/08/2018	Examples Based On Homomorphisms
Week 4, Day 3 08/08/2018	Definition Of Kernel Of Homomorphisms And Examples Based On Kernel Of Homomorphisms Of Groups
Week 4, Day 4 09/08/2018	Fundamental Theorems Of Homomorphisms Of Groups, Second Theorem Of Isomorphisms
Week 4, Day 5 10/08/2018	Third Theorem Of Isomorphisms, Definition Of Automorphisms Of Groups, Examples Based On Automorphisms Of A Group
Week 4, Day 6 11/08/2018	Definition Of Inner Automorphisms, Examples Based On Inner Automorphisms
<b>Week 5</b>	<b>AUTOMORPHISM OF A GROUP</b>
Week 5, Day 1 13/08/2018	<i>Teej</i>
Week 5, Day 2 14/08/2018	Examples Continued, Theorems On Inner Automorphisms
Week 5, Day 3 15/08/2018	<i>Independence Day</i>
Week 5, Day 4 16/08/2018	Group Of Automorphisms Of A Cyclic Group, Examples Based On Cyclic Groups
Week 5, Day 5 17/08/2018	Definition Of Centre Of A Group, Examples And Theorems Based On Centre Of A Group
Week 5, Day 6 18/08/2018	Definition Of Normalizer Of An Element, Theorems Based On Normalizer And Centralizer Of An Element Of A Group
<b>Week 6</b>	<b>AUTOMORPHISM OF A GROUP - CONTINUED</b>
Week 6, Day 1 20/08/2018	Theorems Continued
Week 6, Day 2 21/08/2018	Conjugate Subgroup, Commutator Subgroup, Theorems Based On Commutator Subgroup

Week 6, Day 3 22/08/2018	<i>Id</i>
Week 6, Day 4 23/08/2018	Revision Of Homomorphisms, Isomorphisms And Automorphisms
Week 6, Day 5 24/08/2018	Group Discussion On Normal Subgroup, Simple Group And Quotient Group.
Week 6, Day 6 25/08/2018	Test Of Homomorphisms, Isomorphisms And Automorphisms
<b>Week 7</b>	<b>PERMUTATION GROUPS</b>
Week 7, Day 1 27/08/2018	Definition Of Permutation, Equality Of Permutation, Composition Of Two Functions, Examples Based On Composition Of Two Functions
Week 7, Day 2 28/08/2018	Identity Permutation, Inverse Of A Permutation, Permutation Group, Cyclic Permutation Of A Group
Week 7, Day 3 29/08/2018	Examples Based On Cyclic Permutation, Transposition, Disjoint Cycles
Week 7, Day 4 30/08/2018	Examples Based On Disjoint Cycles, Even And Odd Permutations
Week 7, Day 5 31/08/2018	Alternating Group, Centre Of Permutation Of A Group, Cayley Theorem.
Week 7, Day 6 01/09/2018	Group Discussion On Permutation Groups
<b>Week 8</b>	<b>RINGS AND FIELDS</b>
Week 8, Day 1 03/09/2018	<i>Janamashtmi</i>
Week 8, Day 2 04/09/2018	Definition Of Ring And Types Of Rings, Examples, Rings With Or Without Zero Divisors
Week 8, Day 3 05/09/2018	<i>Talent Show (Tentative)</i>
Week 8, Day 4 06/09/2018	Definition Of Integral Domain, Skew Field And Field, Theorems Based On Integral Domain, Skew Field And Field
Week 8, Day 5 07/09/2018	Examples Based On Integral Domain, Skew Field And Field
Week 8, Day 6 08/09/2018	Examples Continued, Definition Of Subrings
<b>Week 9</b>	<b>SUBRINGS</b>
Week 9, Day 1 10/09/2018	Definition Of Subrings And Theorems Based On Subrings
Week 9, Day 2 11/09/2018	Centre Of A Ring And It's Theorems, Examples

Week 9, Day 3 12/09/2018	Characteristics Of A Ring And Theorems On Characteristics Of A Ring
Week 9, Day 4 13/09/2018	Group Discussion On Ring, Subring, Integral Domain, Skew Field And Field
Week 9, Day 5 14/09/2018	Test Of Ring And Subring
Week 9, Day 6 15/09/2018	Test Of Field, Subfields And Integral Domain
<b>Week 10</b>	<b>IDEALS AND QUOTIENT RINGS</b>
Week 10, Day 1 17/09/2018	Definition Of Ideals, Examples Of Ideals, Sum Of Two Ideals, Ideal Generated By A Set, Product Of Two Ideals.
Week 10, Day 2 18/09/2018	Theorems On Ideals, Definition Of Principal Ideal, Unity Ideal, Maximal Ideal, Theorems Based On It.
Week 10, Day 3 19/09/2018	Theorems Continued
Week 10, Day 4 20/09/2018	Examples Based On Principal Ideal, maximal Ideal And Prime Ideal.
Week 10, Day 5 21/09/2018	Examples Continued, Definition Of Quotient Ring And Its Examples.
Week 10, Day 6 22/09/2018	Definition Of Ring Homomorphism, Examples And Theorems Based On It, Definition Of Ring Isomorphism.
<b>Week 11</b>	<b>HOMOMORPHISM OF RINGS</b>
Week 11, Day 1 24/09/2018	Kernel Of A Ring Homomorphism, Theorems Based On Kernel And Examples.
Week 11, Day 2 25/09/2018	Fundamental Theorem Of Ring Homomorphism, First Theorem Of Isomorphism.
Week 11, Day 3 26/09/2018	Second Theorem Of Isomorphism, Examples Based On Ring Isomorphism.
Week 11, Day 4 27/09/2018	Embedding Of Rings, Embedded Ring, Set Of Quotient Of A Ring, Theorem On Embedded Ring.
Week 11, Day 5 28/09/2018	<b>Sessionals (Tentative)</b>
Week 11, Day 6 29/09/2018	<b>Sessionals (Tentative)</b>
<b>Week 12</b>	<b>Sessionals (Tentative)</b>
Week 12, Day 1 01/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 2 02/10/2018	<b><i>Gandhi Jayanti</i></b>

Week 12, Day 3 03/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 4 04/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 5 05/10/2018	Theorems Continued On Embedded Ring And Examples Based On It.
Week 12, Day 6 06/10/2018	Test Of Topic Ideals And Quotient Rings.
<b>Week 13</b>	<b>EUCLIDEAN RINGS:</b>
Week 13, Day 1 08/10/2018	Divisibility In A Commutative Ring, Unit Element, Theorems Based On Unit Element, Associates.
Week 13, Day 2 09/10/2018	Prime Element, Irreducible Elements, Gaussian Integers, Greatest Common Divisor, Least Common Multiple.
Week 13, Day 3 10/10/2018	<i>Aggarsen Jayanti</i>
Week 13, Day 4 11/10/2018	Theorems Based On L.C.M And G.C.D, Euclidean Domain And Its Theorems.
Week 13, Day 5 12/10/2018	Principal Ideal Domain And Its Theorems
Week 13, Day 6 13/10/2018	Theorems Continued And Examples
<b>Week 14</b>	<b>POLYNOMIAL RINGS:</b>
Week 14, Day 1 15/10/2018	Group Discussion On Euclidean Ring, Euclidean Domain, G.C.D, L.C.M.
Week 14, Day 2 16/10/2018	Polynomial Rings, Degree Of A Polynomial, Polynomial Over A Ring, Embedding Of $R$ Into $R[X]$ .
Week 14, Day 3 17/10/2018	Polynomials Over An Integral Domain, Theorems Based On Integral Domain.
Week 4, Day 4 18/10/2018	<i>Dussehra</i>
Week 14, Day 5 19/10/2018	Polynomial Over A Field and Theorems Based On It.
Week 14, Day 6 20/10/2018	Ring Of Polynomials In $N$ Variables Over An Integral Domain, Divisibility Of Polynomials Over A Field.
<b>Week 15</b>	<b>POLYNOMIAL RINGS CONTINUED:</b>
Week 15, Day 1 22/10/2018	Divisor, Unit Element, Associates, Proper And Improper Divisors, Reducible And irreducible Element.
Week 15, Day 2 23/10/2018	G.C.D, Relatively Prime, Algorithm For $R[X]$ , Remainder Theorem.

Week 15, Day 3 24/10/2018	<b><i>Valmiki Jayanti</i></b>
Week 15, Day 4 25/10/2018	Theorems And Examples Based On Principal Ideal Domain
Week 15, Day 5 26/10/2018	Definition Of Unique Factorization Domain And Theorems Based On U.F.D.
Week 15, Day 6 27/10/2018	<b><i>KarvaChauth</i></b>
<b>Week 16</b>	
Week 16, Day 1 29/10/2018	Theorems Continued, Lemma Of Ascending Chain Of Ideals
Week 16, Day 2 30/10/2018	Primitive Polynomials, Irreducible Polynomials, Gauss Lemma, Converse Of Gauss Lemma
Week 16, Day 3 31/10/2018	Theorems On Units Of $R$ And $R[X]$ , Theorems Based On Irreducible Elements In $R[X]$
Week 16, Day 4 01/11/2018	<b><i>Haryana Day</i></b>
Week 16, Day 5 02/11/2018	Field Of Quotients Of A U.F.D., Theorems And Lemma Based On It, Eisenstein's Irreducibility Criterion.
Week 16, Day 6 03/11/2018	Test Of Polynomial Rings
<b>Week 17</b> 04-11/11/2018	<b>Diwali Break</b>
<b>Week 18</b> 12-15/11/2018	<b>REVISION</b>



## Lesson Plan

Name of Assistant Professor: Manju Sharma

Class and Section : B.Sc.(Sem-3)

Subject : Advanced calculus(BM-231)

Prescribed to November 2018

<b>Week 1</b>	
Week 1, Day 1 16/07/2018	<i>Inaugural Hawan</i>
Week 1, Day 2 17/07/2018	<b>Definition of Continuity and Sequential Continuity, Properties of continuous function</b>
Week 1, Day 3 18/07/2018	Definition of Uniform Continuity and examples
Week 1, Day 4 19/07/2018	Chain rule of differentiability and examples
Week 1, Day 5 20/07/2018	Rolle's theorem
Week 1, Day 6 21/07/2018	Revision
<b>Week 2</b>	
Week 2, Day 1 23/07/2018	Lagrange's Mean Value theorem and their geometrical interpretation
Week 2, Day 3 25/07/2018	Examples
Week 2, Day 4 26/07/2018	Taylor's theorem
Week 2, Day 5 27/07/2018	Examples
Week 2, Day 6 28/07/2018	Revision
<b>Week 3</b>	
Week 3, Day 1 30/07/2018	Test
Week 3, Day 2 31/07/2018	<i>Shaheed Udham Singh Martyrs' day</i>
Week 3, Day 3 01/08/2018	Various form of Taylor's theorem
Week 3, Day 4 02/08/2018	Examples
Week 3, Day 5 03/08/2018	Revision
Week 3, Day 6 04/08/2018	Test
<b>Week 4</b>	
Week 4, Day 1 06/08/2018	Darboux theorem
Week 4, Day 2 07/08/2018	Darboux intermediate value theorem for derivative
Week 4, Day 3 08/08/2018	Intermediate forms
Week 4, Day 4 09/08/2018	Examples
Week 4, Day 5 10/08/2018	Group discussin

Week 4, Day 6 11/08/2018	Test
<b>Week 5</b>	
Week 5, Day 1 13/08/2018	<i>Teej</i>
Week 5, Day 2 14/08/2018	Limit continuity of real valued functions of two variables
Week 5, Day 3 15/08/2018	<i>Independence Day</i>
Week 5, Day 4 16/08/2018	Examples
Week 5, Day 5 17/08/2018	Partial differentiation
Week 5, Day 6 18/08/2018	Total differential
<b>Week 6</b>	
Week 6, Day 1 20/08/2018	Examples
Week 6, Day 2 21/08/2018	Definition of composite functions and implicit functions
Week 6, Day 3 22/08/2018	<i>Id</i>
Week 6, Day 4 23/08/2018	Change of variables
Week 6, Day 5 24/08/2018	Homogeneous functions and examples
Week 6, Day 6 25/08/2018	Euler's theorem on Homogeneous functions
<b>Week 7</b>	
Week 7, Day 1 27/08/2018	Examples
Week 7, Day 2 28/08/2018	Test
Week 7, Day 3 29/08/2018	Taylor's theorem for functions of two variables
Week 7, Day 4 30/08/2018	Examples
Week 7, Day 5 31/08/2018	Revision
Week 7, Day 6 01/09/2018	Group discussion
<b>Week 8</b>	
Week 8, Day 1 03/09/2018	<i>Janamashtmi</i>
Week 8, Day 2 04/09/2018	Differentiability of real valued function of two variables
Week 8, Day 3 05/09/2018	TalesyTale( <i>Tentative</i> )
Week 8, Day 4 06/09/2018	Examples
Week 8, Day 5 07/09/2018	Schwartz theorem and examples
Week 8, Day 6 08/09/2018	Young's theorem and examples

<b>Week 9</b>	
Week 9, Day 1 10/09/2018	Implicit function theorem
Week 9, Day 2 11/09/2018	Examples
Week 9, Day 3 12/09/2018	Revision
Week 9, Day 4 13/09/2018	Test
Week 9, Day 5 14/09/2018	Definition of maxima and minima
Week 9, Day 6 15/09/2018	Example
<b>Week 10</b>	
Week 10, Day 1 17/09/2018	Definition of saddle points of two variables
Week 10, Day 2 18/09/2018	Lagrange's method of multiplier
Week 10, Day 3 19/09/2018	Examples
Week 10, Day 4 20/09/2018	Group discussion
Week 10, Day 5 21/09/2018	Examples
Week 10, Day 6 22/09/2018	Test
<b>Week 11</b>	
Week 11, Day 1 24/09/2018	Definition of tangent
Week 11, Day 2 25/09/2018	Definition of principal normals
Week 11, Day 3 26/09/2018	Definition of binormals
Week 11, Day 4 27/09/2018	Examples
Week 11, Day 5 28/09/2018	<b>Sessionals (Tentative)</b>
Week 11, Day 6 29/09/2018	<b>Sessionals (Tentative)</b>
<b>Week 12</b>	<b>Sessionals (Tentative)</b>
Week 12, Day 1 01/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 2 02/10/2018	<i>Gandhi Jayanti</i>
Week 12, Day 3 03/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 4 04/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 5 05/10/2018	Serret- Frenet formulae
Week 12, Day 6 06/10/2018	Examples
<b>Week 13</b>	
Week 13, Day 1	Locus of the centre of curvature

08/10/2018	
Week 13, Day 2 09/10/2018	Examples
Week 13, Day 3 10/10/2018	<i>Aggarsen Jayanti</i>
Week 13, Day 4 11/10/2018	Test
Week 13, Day 5 12/10/2018	Spherical curvature
Week 13, Day 6 13/10/2018	Examples
<b>Week 14</b>	
Week 14, Day 1 15/10/2018	Revision
Week 14, Day 2 16/10/2018	Locus of center of spherical curvature
Week 14, Day 3 17/10/2018	Examples
Week 4, Day 4 18/10/2018	<i>Dussehra</i>
Week 14, Day 5 19/10/2018	Test
Week 14, Day 6 20/10/2018	Definition of involutes and evoluted
<b>Week 15</b>	
Week 15, Day 1 22/10/2018	Examples
Week 15, Day 2 23/10/2018	Bertrand curves
Week 15, Day 3 24/10/2018	<i>Valmiki Jayanti</i>
Week 15, Day 4 25/10/2018	Test
Week 15, Day 5 26/10/2018	Definition of tangent planes
Week 15, Day 6 27/10/2018	<i>Karva Chauth</i>
<b>Week 16</b>	
Week 16, Day 1 29/10/2018	Examples
Week 16, Day 2 30/10/2018	One parameter family of surfaces
Week 16, Day 3 31/10/2018	Examples
Week 16, Day 4 01/11/2018	<i>Haryana Day</i>
Week 16, Day 5 02/11/2018	Envelopes
Week 16, Day 6 03/11/2018	Revision and <b>test</b>
<b>Week 17</b> 04-11/11/2018	<b>Diwali Break</b>
<b>Week 18</b> 12-15/11/2018	<b>Preparatory Holidays</b>

## Lesson Plan

Name of Assistant Professor: Manju Sharma

Class : B.Sc. III (fifth semester)

Subject: Real Analysis

From July-November 2018

<b>Week 1</b>	
Week 1, Day 1 16/07/2018	<i>Inaugural Hawan</i>
Week 1, Day 2 17/07/2018	<b>Chapter 1:Riemann Integral</b> Definition of Partition, Norm of a partition, Refinement of a partition, Upper and Lower sums.
Week 1, Day 3 18/07/2018	Oscillatory sum, Theorems based on upper and lower sums.
Week 1, Day 4 19/07/2018	Continue...
Week 1, Day 5 20/07/2018	Definition of Riemann Integral, Related examples
Week 1, Day 6 21/07/2018	Continue...
<b>Week 2</b>	
Week 2, Day 1 23/07/2018	Darboux Theorem
Week 2, Day 2 24/07/2018	Theorems based on conditions of integrability
Week 2, Day 3 25/07/2018	Integrability of continuous functions, Related theorems
Week 2, Day 4 26/07/2018	Continue...
Week 2, Day 5 27/07/2018	Examples based on it
Week 2, Day 6 28/07/2018	Integrability of monotonic functions, Integral as a sum of limit
<b>Week 3</b>	
Week 3, Day 1 30/07/2018	Riemann sum,Second definition of integrability , Related theorems
Week 3, Day 2 31/07/2018	<i>Shaheed Udham Singh Martyrs' day</i>
Week 3, Day 3 01/08/2018	Related theorems and examples.
Week 3, Day 4 02/08/2018	Continue...
Week 3, Day 5 03/08/2018	Continue...
Week 3, Day 6 04/08/2018	Theorems based on properties of Riemann Integral.
<b>Week 4</b>	
Week 4, Day 1 06/08/2018	Continue...
Week 4, Day 2 07/08/2018	Continue...
Week 4, Day 3 08/08/2018	Continue...
Week 4, Day 4	Continue...

09/08/2018	
Week 4, Day 5 10/08/2018	Theorems on continuity and differentiability of integrable functions.
Week 4, Day 6 11/08/2018	Primitive of a function, Fundamental theorem of integral calculus.
<b>Week 5</b>	
Week 5, Day 1 13/08/2018	<i>Teej</i>
Week 5, Day 2 14/08/2018	Mean value theorems of integral calculus, Related examples
Week 5, Day 3 15/08/2018	<i>Independence Day</i>
Week 5, Day 4 16/08/2018	Continue...
Week 5, Day 5 17/08/2018	Continue...
Week 5, Day 6 18/08/2018	Test of chapter 1
<b>Week 6</b>	
Week 6, Day 1 20/08/2018	<b>Chapter 2: Improper Integral</b> Definition of Improper integral, Types of Improper integral, Convergence of Improper integral.
Week 6, Day 2 21/08/2018	Related examples.
Week 6, Day 3 22/08/2018	<i>Id</i>
Week 6, Day 4 23/08/2018	Continue...
Week 6, Day 5 24/08/2018	Examples based on when improper integral is of second kind.
Week 6, Day 6 25/08/2018	Comparison tests for convergence of improper integral.
<b>Week 7</b>	
Week 7, Day 1 27/08/2018	Related theorems and examples.
Week 7, Day 2 28/08/2018	Continue...
Week 7, Day 3 29/08/2018	Continue...
Week 7, Day 4 30/08/2018	Continue...
Week 7, Day 5 31/08/2018	Cauchy test, Absolute convergence, Related theorem.
Week 7, Day 6 01/09/2018	Related examples
<b>Week 8</b>	
Week 8, Day 1 03/09/2018	<i>Janamashtmi</i>
Week 8, Day 2 04/09/2018	Comparison tests for convergence at infinity.
Week 8, Day 3 05/09/2018	<i>Talent Show (Tentative)</i>
Week 8, Day 4 06/09/2018	Related examples and theorems

Week 8, Day 5 07/09/2018	Abel test for convergence, Related examples
Week 8, Day 6 08/09/2018	Dirchlet test for convergence
<b>Week 9</b>	
Week 9, Day 1 10/09/2018	Related examples
Week 9, Day 2 11/09/2018	Frullani's Integral, Related examples.
Week 9, Day 3 12/09/2018	<b>Chapter 3: Integral as a function of a parameter</b> Continuity of the integral, Leibnitz rule.
Week 9, Day 4 13/09/2018	Integral as a function of a parameter
Week 9, Day 5 14/09/2018	Related examples.
Week 9, Day 6 15/09/2018	Test of chapter 2
<b>Week 10</b>	
Week 10, Day 1 17/09/2018	<b>Chapter 4: Metric Spaces</b> Definition of metric space, Some examples of metric spaces.
Week 10, Day 2 18/09/2018	Continue....
Week 10, Day 3 19/09/2018	Bounded Sequence , Related examples.
Week 10, Day 4 20/09/2018	Bounded function, Induced metric
Week 10, Day 5 21/09/2018	Semi-metric spaces, Distance between point and subset
Week 10, Day 6 22/09/2018	Diameter of a subset, Distance between two subsets, Bounded and unbounded metric spaces
<b>Week 11</b>	
Week 11, Day 1 24/09/2018	<b>Chapter 5: Open and Closed sets in metric space</b> Definition of open and closed ball and related examples.
Week 11, Day 2 25/09/2018	Interior point, Neighbourhood of a point, Interior of a set
Week 11, Day 3 26/09/2018	Open set, Related theorems
Week 11, Day 4 27/09/2018	Continue....
Week 11, Day 5 28/09/2018	<b>Sessionals (Tentative)</b>
Week 11, Day 6 29/09/2018	<b>Sessionals (Tentative)</b>
<b>Week 12</b>	
Week 12, Day 1 01/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 2 02/10/2018	<i>Gandhi Jayanti</i>
Week 12, Day 3 03/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 4 04/10/2018	<b>Sessionals (Tentative)</b>
Week 12, Day 5 05/10/2018	Adherent point, Limit point, Isolated point, Derived set, Closure of a set.

Week 12, Day 6 06/10/2018	Closed set, Theorems based on it
<b>Week 13</b>	
Week 13, Day 1 08/10/2018	Continue....
Week 13, Day 2 09/10/2018	Exterior points and exterior of a set, Frontier points, Boundary points
Week 13, Day 3 10/10/2018	<i>Aggarsen Jayanti</i>
Week 13, Day 4 11/10/2018	Subspaces of a metric space
Week 13, Day 5 12/10/2018	<b>Chapter 6: Completeness in metric spaces</b> Convergence in metric spaces, Cauchy sequences
Week 13, Day 6 13/10/2018	Related theorems
<b>Week 14</b>	
Week 14, Day 1 15/10/2018	Complete metric space, Related theorems
Week 14, Day 2 16/10/2018	Cantor Intersection theorem, Nowhere dense set
Week 14, Day 3 17/10/2018	Baire's category space, Contraction principle in a metric space
Week 4, Day 4 18/10/2018	<i>Dussehra</i>
Week 14, Day 5 19/10/2018	<b>Chapter:7 Continuity and Uniform continuity in metric spaces</b> Continuous functions, Related theorems
Week 14, Day 6 20/10/2018	Uniform continuity and theorems
<b>Week 15</b>	
Week 15, Day 1 22/10/2018	<b>Chapter 8: Compactness in metric spaces</b> Definition of covers, Compact set and compact metric space
Week 15, Day 2 23/10/2018	BWP, Sequentially compact metric space, Related theorems
Week 15, Day 3 24/10/2018	<i>Valmiki Jayanti</i>
Week 15, Day 4 25/10/2018	Countably compact spaces and theorems
Week 15, Day 5 26/10/2018	Finite Intersection Property, Total boundedness, Related theorems
Week 15, Day 6 27/10/2018	<i>KarvaChauth</i>
<b>Week 16</b>	
Week 16, Day 1 29/10/2018	Continuity in relation with compactness.
Week 16, Day 2 30/10/2018	<b>Chapter 9: Connectedness in metric spaces</b> Separated sets, Connected and Disconnected sets
Week 16, Day 3 31/10/2018	<i>Properties of separated sets</i> , Related theorems
Week 16, Day 4 01/11/2018	<i>Haryana Day</i>
Week 16, Day 5 02/11/2018	Related theorems , <i>Components</i>
Week 16, Day 6 03/11/2018	Continuity in relation with connectedness



<b>Week 17</b> 04-11/11/2018	<b>Diwali Break</b>
<b>Week 18</b> 12-15/11/2018	<b>Revision</b>

