



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section

Email: academicsectionju14@gmail.com

NOTIFICATION

(23/May/Adp./ 36)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the revised Syllabi and Courses of Study of subject of **Mathematics** for Master Degree Programme of Semesters **Ist** and **IInd** under the **Choice Based Credit System (as given in the annexure)** for the examinations to be held in the years as per the details given below:

Subject	Semester	for the examination to be held in the years
Mathematics	Semester-I	December 2023, 2024 and 2025
	Semester-II	May 2024, 2025 and 2026

The Syllabi of the courses is available on the University website:
www.jammuuniversity.ac.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/23/ 3397-3407
Dated: 25-5-2023.

Copy for information and necessary action to:

1. Dean, Faculty of Mathematical Science
2. Convener, Board of Studies in **Mathematics**
3. Sr. P.A. to the Controller of Examinations
4. All members of the Board of Studies
5. Confidential Assistant to the Controller of Examinations
6. I/C Director, Computer Centre, University of Jammu
7. Deputy Registrar/Asst. Registrar (Conf. /Exams. UG/Eval Non-Prof)
- ✓ 8. Incharge, University Website for Uploading of the notification.

Sumitsharma
24/5
Deputy Registrar (Academic)

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24/5/23

Revised Syllabi and Course of Study of Two
Years Master Degree Programme in Mathematics
(CBCS)
University of Jammu.

The Master Degree Programme in Mathematics of University of Jammu is a two years CBCS programme consisting of four semesters and carries 88 credits with each Course of 4 Credits and the Dissertation in Semester IV shall carry 8 Credits. All courses in Semesters I and II are compulsory, In Semester III, first three courses are compulsory and students can choose any two courses out of rest of the given courses whereas in Semester IV, students can choose any three courses out of the given list of courses and there shall be a Dissertation of 8 credits. Students are required to earn 4 more credits each in Semester III and IV from a MOOC course from SWAYAM platform in Semester III and from an open course in Semester IV (given by different departments at the Campus as laid down in the CBCS guidelines of the University).

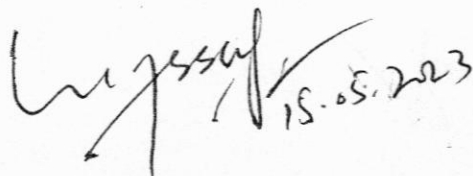
Titles of the Courses in each Semester

Semester I

1. PSMATC101 Abstract Algebra
2. PSMATC102 Real Analysis
3. PSMATC103 First Course in Topology
4. PSMATC104 Differential and Integral Equations
5. PSMATC105 Fundamentals of Computers

Semester II

1. PSMATC201 Rings and Modules
2. PSMATC202 Measure Theory
3. PSMATC203 Second Course in Topology
4. PSMATC204 Complex Analysis


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5. PSMATC205 Differential Geometry

Semester III

1. PSMATC301 Advance Complex Analysis

2. PSMATC302 Functional Analysis

3. PSMATC303 Linear Algebra

4. PSMATC304 Advance Measure Theory

5. PSMATC305 Complex Dynamics

6. PSMATC306 Partial Differential Equations

7. PSMATC307 Number Theory

8. PSMATC308 Multivariable Calculus

9. PSMATC309 Linear Programming and Optimization

10. PSMATC310 Numerical Methods

11. PSMATC311 Graph Theory

Semester IV

1. PSMATC401 Analytic Function Spaces

2. PSMATC402 Advance Functional Analysis

3. PSMATC403 Operator Theory

4. PSMATC404 Normal Families in Complex Analysis

5. PSMATC405 Value Distribution of Meromorphic Functions

6. PSMATC406 Geometric Function Theory

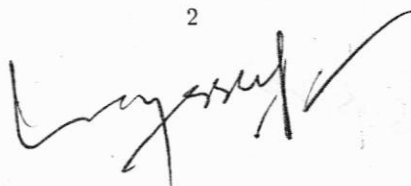
7. PSMATC407 Complex Analysis in Several Variables

8. PSMATC408 Algebraic Topology

9. PSMATC409 Harmonic Analysis

10. PSMATC410 Masters Dissertation

11. PSMATO411 Numerical Methods and Graph Theory
(This is an open course for students of other departments)



Revised Syllabi and Course of Study of Two Years Master Degree
Programme in Mathematics (CBCS)
University of Jammu.

SEMESTER I

(Examination to be held in December 2023, 2024, 2025)

Course Code: PSMATC101
Credits: 04

Course Title: Abstract Algebra
Total Number of Lectures: 60

Maximum Marks: 100, Minor I: 20 Marks, Minor II: 20 Marks,
Major: 60 Marks

Objectives: The aim of this course is to continue an UG Course on Algebra to next level.

Prerequisite of this course: UMJMAT402

Structure of the Course: This course is divided into four units of 15 class lectures each, wherein one lecture is of one hour duration.

Unit-I

Conjugacy classes, class equation, centre of a group, Cauchy's theorem, p -groups, Sylow's Theorem I, II and III. Internal direct sums and direct products of finite groups. Finite Abelian groups as direct sums of Sylow subgroups.

Unit-II

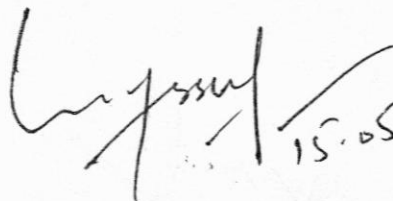
Normal and subnormal series, Solvable groups, Solvability of subgroups, factor groups and of finite p -groups, Commutator subgroups and solvability. Simple groups. Composition series. Jordan-Holders theorem for finite groups. Simplicity and non-solvability of A_n , $n \geq 5$.

Unit-III

Modules, submodules, sum of submodules, finitely generated modules, cyclic modules, finite direct sum and direct product. Quotient Modules, homomorphisms, Isomorphism theorems. Submodules of Quotient Modules, Ring as a modules over itself and its submodules, Algebra of ideals of a ring, maximal and prime ideals, ideals of quotient Ring.

Unit-IV

Unit, prime and irreducible elements of a ring. Factorization domain and the ascending chain condition on principal ideals. $R[x]$ the polynomial rings as a factorization domain when R is a factorization domain. The ring $\mathbb{Z}[x]$ as a factorization domain. Euclidean domain and principal ideal domain as factorization domains. Unique factorization domain and the irreducible and prime elements of U.F.D., Polynomial rings over a U.F.D. Eisenstein's irreducibility criterion and Gauss theorem.

 15.05.2023