1.2.2

Supporting Documents-

Department of Mathematical Sciences

List of Program in which CBCS / Elective Course System Is Implemented in the Year 2021-22
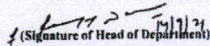
1.1.2 & 1.2.2

List of Programs in which CBCS/Elective
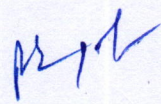course system is implemented in the last year

List of Programs in Which CBCS / Elective Course Implemented in the Last Academic Year

<u>**Name of the Department**</u>: Department of Mathematics

Program	Year of Syllabus Revision
M.Sc	2016
B.Sc	2019
Ph.D	2016

(Signature of Head of Department)

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Third Semester

Contact Hours: 27

Course Code	Course Title	Load Allocation			Marks Distribution			
		L	T	P	Internal	External	Total	
MMS-301	Topology	4	1	0	50	100	150	
MMS-302	Operations Research	4	1	0	50	100	150	
MMS-303	Mathematical Statistics	4	1	0	50	100	150	
MMS-304	Functional Analysis	4	1	0	50	100	150	
MMS-XXX	Elective –I	4	0	0	50	100	150	
MMS-305	Seminar	0	0	2	50	-	50	
	Total	20	05	02	300	500	800	

Fourth Semester

Contact Hours: 27

Course Code	Course Title	Load Allocation			Marks Distribution			
		L	T	P	Internal	External	Total	
MMS-401	Discrete Mathematics	4	1	0	50	100	150	
MMS-402	Mathematical Methods	4	1	0	50	100	150	
MMS-403	Partial differential equations	4	1	0	50	100	150	
MMS-YYY	Elective –II	4	1	0	50	100	150	
MMS-ZZZ	Elective –III	4	0	0	50	100	150	
MMS-404	Seminar	0	0	2	50	-	50	
	Total	20	05	02	300	500	800	

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Elective –I MMS XXX (Any one subject to be opted)

MMS-501 Fluid Mechanics
MMS-502 Solid Mechanics
MMS-503 Coding Theory
MMS-504 Advanced Complex Analysis

Note1: Student is to adopt one course from the list of Elective II and one course from list of Elective III

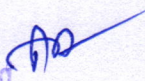## Elective – II Courses: MMS 505, MMS 506, MMS 510, MMS 512

Elective – III Courses: MMS 507, MMS 508, MMS 509, MMS 511

MMS-505 Advanced Operations Research
MMS-506 Advanced Fluid Mechanics
MMS-507 Advanced Solid Mechanics
MMS-508 Number Theory and Cryptography
MMS-509 Theory of Linear Operators
MMS-510 Advanced Numerical Methods
MMS-511 Topological Vector Spaces
MMS-512 Fractional Calculus

Note 2:

Instructions for paper setters and candidates:

(a) Eight questions are to be set preferably two questions from the each unit.

(b) The students are required to attempt any five questions. All questions carry equal marks.

(c) Duration of examination is three hours.

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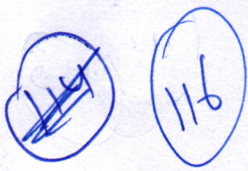I.K. Gujral Punjab Technical University
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Fourth Semester   **Contact Hours: 27 Hrs.**

Course Code	Course Title	Load Allocation			Marks Distribution			Credits
		L	T	P	Internal	External	Total	
MSM -401	Mechanics-II	4	1	0	20	80	100	5
MSM -402	Mathematical Statistics-II	4	1	0	20	80	100	5
MSM-403	Differential Geometry	4	1	0	20	80	100	5
MSM -YYY	Elective-II	4	1	0	20	80	100	5
MSM -ZZZ	Elective-III	4	1	0	20	80	100	5
MSM -404	Seminar	0	0	2	50	-	50	1
Total		20	05	02	150	400	550	26

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Elective-I MSM XXX (Any one subject to be opted)

MSM -501 Coding Theory

MSM -502 Operations Research

Note1: Student is to adopt one course from the list of Elective-II and one course from list of Elective-III

Elective-II Courses: MSM-503, MSM-504, MSM-505, MSM-506

Elective-III Courses: MSM-507, MSM-508, MSM-509, MSM-510, MSM-511

MSM -503 Advanced Complex Analysis

MSM -504 Advanced Operations Research

MSM -505 Advanced Fluid Mechanics

MSM -506 Advanced Solid Mechanics

MSM -507 Theory of Linear Operators

MSM -508 Advanced Numerical Methods
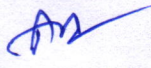
MSM -509 Topological Vector Spaces

MSM -510 Fractional Calculus

MSM -511 Discrete Mathematics

Note 2:

Instructions for paper setters and candidates:

a) The entire question paper should be distributed into three sections viz. Section-A, Section-B, Section-C.

b) The Section-A should cover the entire syllabus, the Section-B should cover Unit-I & II and the Section-C should cover Unit-III & IV of the syllabus.

c) Section-A should contain eight questions of two marks each. This section should cover the entire syllabus. All questions in this section should be compulsory.

d) Section-B and Section-C should contain three questions each carrying 16 (sixteen) marks.

e) Student should be asked to attempt at least two questions from Section-B and Section-C each.

f) The awards for internal and external examination should be in 20:80 ratio.

g) The Duration of examination is three hours.

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Fourth Semester   **Contact Hours: 27 Hrs.**

S.No.	Course Code	Course Title	Load Allocation			Marks Distribution			Credits
			L	T	P	Internal	External	Total	
1.	UC-MSM-401-18	Differential Geometry	4	1	0	40	60	100	4
2.	UC-MSM-WWW-18	Elective	4	1	0	40	60	100	4
3.*	UC-MSM-XXX-18 UC-MSM-YYY-18 UC-MSM-ZZZ-18	Elective	4	1	0	40	60	100	12
	UC-MSM-411-18	Dissertation	-	-	12	200	100	300	
4.	UC-MSM-412-18	Seminar	0	0	2	50	0	50	2
		Total						550	22

TOTAL NUMBER OF CREDITS = 90

Note*: Students may opt either three Elective Theories or Dissertation.

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LIST OF DEPARTMENTAL/INTERDISCIPLINARY ELECTIVES

Elective- UC-MSM-WWW-18, UC-MSM-XXX-18, UC-MSM-YYY-18, UC-MSM-ZZZ-18 (Any one subject to be opted)

MSM-501-18 Discrete Mathematics

MSM-502-18 Coding Theory

MSM-503-18 Operations Research

MSM-504-18 Advanced Number Theory

MSM-505-18 Advanced Complex Analysis

MSM-506-18 Advanced Operations Research

MSM-507-18 Advanced Fluid Mechanics

MSM-508-18 Advanced Solid Mechanics

MSM-509-18 Theory of Linear Operators

MSM-510-18 Advanced Numerical Methods

MSM-511-18 Topological Vector Spaces

MSM-512-18 Fractional Calculus

Examination and Evaluation

Theory

S. No.	Evaluation criteria	Weightage in Marks	Remarks
1	Mid term/sessional Tests	24	Internal evaluation (40 Marks) MSTs, Quizzes, assignments, attendance, etc., constitute internal evaluation. Average of two mid semester test will be considered for evaluation.
2	Attendance	6	
3	Assignments	10	
4	End semester examination	60	External evaluation

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