

1.2.1

**Supporting Documents-**

**Department of Mathematical Sciences**

**Approved MoMs of BoS in Which New  
Courses Were Introduced**



I.K. Gujral Punjab Technical University

Department of Mathematical Sciences

**Minutes of the meeting of Board of Studies (BOS) of Mathematics held  
on August 05, 2022**

The meeting of Board of studies of Mathematics was held on 11/07/2017. The following members were present in the meeting

1. Dr. Ashish Arora, Professor, IKGPTU, Kapurthala, Chairman (BOS)
2. Dr. Amritbir Singh, Professor, BBSBEC, Fatehgarh Sahib
3. Dr. D.S. Pathania, Professor, GNDEC, Ludhiana
4. Dr. Sanjay Kumar Srivastva, Professor, BCET Gurdaspur
5. Dr. Rajesh Narula, Asst. Prof., IKGPTU, Kapurthala
6. Dr. Gurjinder Singh, Asst. Prof., IKGPTU, Kapurthala
7. Dr. Geeta Partap Singh, NIT Jalandhar, Outside Expert
8. Dr. Megha Goyal, Bos Coordinator, IKGPTU, Kapurthala
9. Dy. Director/ Assistant Director, Department of CR&A, IKGPTU
10. Mr. Sahil, Student, B.Sc (Hons.) Mathematics 5<sup>th</sup> semester, IKGPTU, Kapurthala
11. Ms. Jimmy, Alumni, B.Sc (Hons.) Mathematics, IKGPTU, Kapurthala

The following recommendations were given by the Board:

**Agenda 1. To finalize the Course content, Course outcomes and Program objectives of M.Sc. (Mathematics) 1st & 2nd semester for the batch 2022 and onwards.**

The Course content, Course outcomes and Program objectives of M.Sc. (Mathematics) 1st & 2nd semester for the batch 2022 and onwards have been finalized. The course content is upgraded more than 25%. The revisions in the syllabi of the following subjects have been proposed:

**Semester-I:**

(i) Complex Analysis, Ordinary Differential Equations and Special functions, Introduction to Computer Algebra System.

(ii) The subject name of the subject "Introduction to Computer Algebra System" has been renamed as "Introduction to MATLAB".

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**Semester-II:**

- (i) Real Analysis-II, Mechanics-I, Numerical Analysis.

All the proposed syllabus after recommended modifications will be sent to the BoS experts within 10 days for their consent.

The subject Codes of all the subjects have been proposed to be modified as per the following list:

S.No.	Previous Subject Code	Proposed Subject Code
1	UC-MSM-101-18	MSM-101-22
2	UC-MSM-102-18	MSM-102-22
3	UC-MSM-103-18	MSM-103-22
4	UC-MSM-104-18	MSM-104-22
5	UC-MSM-105-18	MSM-105-22
6	UC-MSM-106-18	MSM-106-22
7	UC-MSM-201-18	MSM-201-22
8	UC-MSM-202-18	MSM-202-22
9	UC-MSM-203-18	MSM-203-22
10	UC-MSM-204-18	MSM-204-22
11	UC-MSM-205-18	MSM-205-22
12	UC-MSM-206-18	MSM-206-22

**Agenda 2. To frame the course contents, Course outcomes for the subjects in B.Sc. (Hons) Mathematics 1st & 2nd semester for the batch 2022 and onwards**

The scheme of B.Sc. (Hons) Mathematics (CBCS system) for 1st & 2nd semester for the batch 2022 and onwards have been suggested to be revised as per UGC model curriculum. The revised scheme is attached. The course contents, Course outcomes for the subjects in B.Sc. (Hons) Mathematics - 1st & 2nd semester for the batch 2022 and onwards have been proposed to be reframed.

The course content is upgraded more than 25%. The revisions in the syllabi of the following subjects have been proposed:

- (i) In Semesters-I & II, for each of the subject, the LTP is recommended to be revised to either (4-0-2) or (5-1-0) with credits 6.
- (ii) In Semesters-I, the subject Co-ordinate geometry is recommended to be replaced with the subject Algebra. The content of the subject Calculus-I is recommended to be revised.
- (iii) It was also recommended that the course codes henceforward be changed. UC-BSHM-XXX-19 in all course codes should be replaced with BSHM-XXX-22 to avoid any further confusion.
- (iv) All the proposed syllabus after recommended modifications will be sent to the BoS experts within 10 days for their consent.

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*Jimmy*

Head

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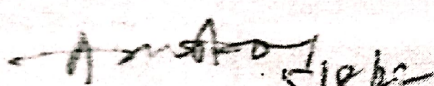
Agenda 3. To revise the Choice based credit scheme of M.Sc. and B.Sc. Programs as per UGC Model curriculum.


The Choice based credit scheme of M.Sc. and B.Sc. Programs have been revised as per the recommendations of the Board Members.

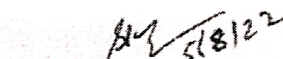
Agenda 4. With the permission of the chair, the invited students (member of BoS) raised the issue regarding the difficulty in understanding Mathematical subjects due to English as instruction medium. Also, the students raised the issue regarding difficulty in relating the relevance of Mathematics in day-to-day life.

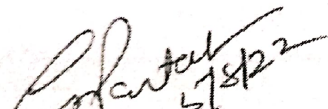
The Board members recommended that due to very limited availability of resources in Hindi and Punjabi to study Mathematical subjects, the students should be allowed to express their views in Hindi/Punjabi in their answer sheets for examination. Also, the applicability part of Mathematics in real life should be incorporated in the form of Projects in the syllabi of B.Sc. and M.Sc Mathematics for the better understanding of utility of Mathematics in view of betterment of the students. It is also recommended that a BoS meeting should be held for brainstorming the various relevant topics for the projects. An exhaustive list of projects should be framed for the students and external experts may be invited for the same.

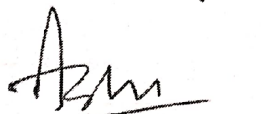
The meeting ended with the vote of thanks.

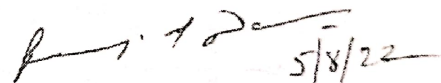
  
Prof. Ashish Arora

  
Prof. D. S. Pathania

  
Prof. S. K. Srivastva

  
Dr. Geeta Pratap

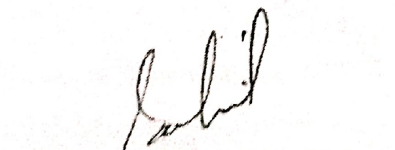
  
Dr. Amritbir Singh

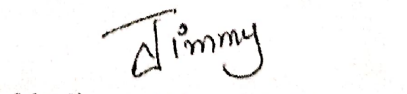
  
Dr. Rajesh Narula

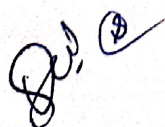
  
Dr. Gurjinder Singh

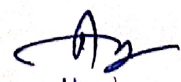
  
Dr. Megha Goyal

  
Dy. Director/Assistant Director

  
Mr. Sahil (Student B.Sc. V Sem)

  
Ms. Jimmy (Alumni, UG Course)



  
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**Scheme of the Program:  
First Semester**

**M.Sc. (Mathematics)  
Contact Hours: 29 Hrs.**

Course Code	Course Title	Load Allocation			Marks Distribution			Credits
		L	T	P	Internal	External	Total	
MSM-101-22	Algebra-I	4	1	0	40	60	100	4
MSM-102-22	Real Analysis-I	4	1	0	40	60	100	4
MSM-103-22	Complex Analysis	4	1	0	40	60	100	4
MSM-104-22	Ordinary Differential Equations and Special Functions	4	1	0	40	60	100	4
MSM-105-22	Mathematical Methods	4	1	0	40	60	100	4
MSM-106-22	Introduction to Mathematical Software (Lab)	0	0	4	30	20	50	2
<b>Total</b>		<b>20</b>	<b>05</b>	<b>04</b>	<b>230</b>	<b>320</b>	<b>550</b>	<b>22</b>

**Second Semester**

**Contact Hours: 29 Hrs.**

Course Code	Course Title	Load Allocation			Marks Distribution			Credits
		L	T	P	Internal	External	Total	
MSM-201-22	Algebra-II	4	1	0	40	60	100	4
MSM-202-22	Real Analysis-II	4	1	0	40	60	100	4
MSM-203-22	Mechanics-I	4	1	0	40	60	100	4
MSM-204-22	Partial Differential Equations	4	1	0	40	60	100	4
MSM-205-22	Numerical Analysis	4	1	0	40	60	100	4
MSM-206-22	Numerical Analysis (Lab)	0	0	4	30	20	50	2
<b>Total</b>		<b>20</b>	<b>05</b>	<b>04</b>	<b>230</b>	<b>320</b>	<b>550</b>	<b>22</b>

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**Scheme of the Program: B.Sc. (Hons.) Mathematics**

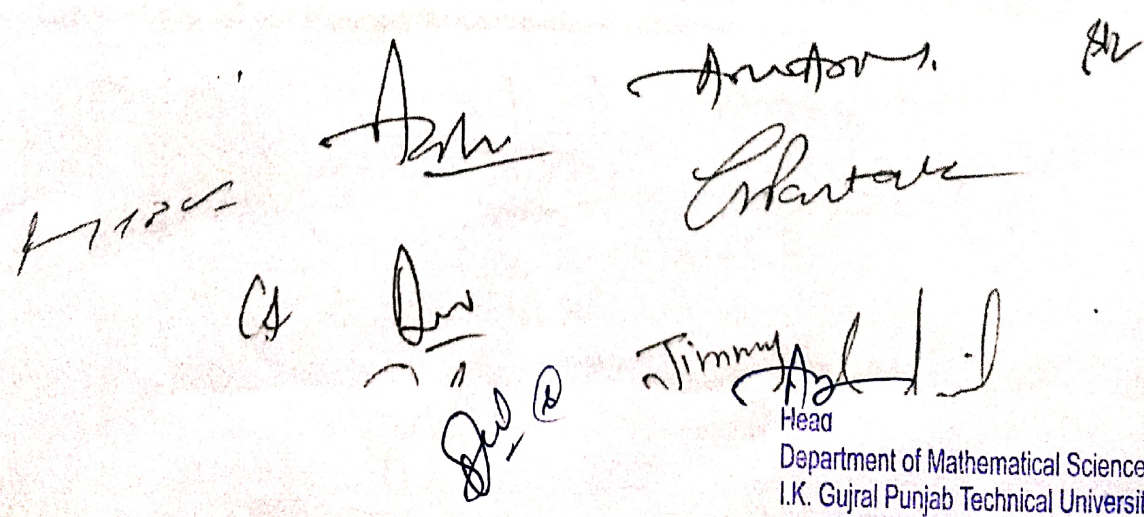
**SEMESTER FIRST**

**Contact Hrs. 24 Hrs.**

S.No.	Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Cr
				L	T	P	Internal	External		
1.	BSHM-101-22	Compulsory	Calculus -I	4	-	-	40	60	100	4
2.	BSHM-102-22		Algebra	5	1	-	40	60	100	6
3.	BSHM-103-22		Programming Lab-I	-	-	4	30	20	50	2
4.	BSHL-xxx-22		Communicative English	2	-	-	20	30	50	2
5.*	BSHP-xxx-22	Elective	Physics-I	3	1	-	40	60	100	4
	BSHP-xxx-22		Physics Lab-I	-	-	4	30	20	50	2
	UGCA-xxx		Computer	3	1	-	40	60	100	4
	UGCA-xxx		Computer Laboratory -I	-	-	4	30	20	50	2
				<b>Total</b>						<b>20</b>

**L: Lectures T: Tutorial P: Practical Cr: Credits**

**Note\*: Physics (BSHP-xxx-22 & BSHP-xxx-22) are compulsory for the Students with Non-Medical background. Students without Non-medical background should opt Fundamentals of Computer and IT (UGCA-xxx & UGCA-xxx).**


  
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**SEMESTER SECOND**

**Contact Hrs. 24 Hrs.**

S.No.	Course Code	Course Type	Course Title	Load Allocation			Marks Distribution		Total Marks	Cr
				L	T	P	Internal	External		
1.	BSHM-201-22	Compulsory	Real Analysis	5	1	-	40	60	100	6
2.	BSHM-202-22		Differential Equations	4	-	-	40	60	100	4
3.	BSHM-203-22		Programming Lab-II	-	-	4	30	20	50	2
4.*	BSHL-xxx-22 Or BSHL-xxx-22		Punjabi Compulsory Or Mudli Punjabi	2	-	-	20	30	50	2
5.**	BHCL-xxx-22	Elective	Chemistry-I	3	1	-	40	60	100	4
	BHCP-xxx-22		Chemistry Lab-I	-	-	4	30	20	50	2
	BBA-GE xxx		Managerial Economics-I	5	1	0	40	60	100	6
				<b>Total</b>					<b>20</b>	

**L: Lectures T: Tutorial P: Practical Cr: Credits**

**Note 1\*:** Students with Punjabi as a passing subject in 10<sup>th</sup> class will study Punjabi Compulsory (BSHL-xxx-22). Students without Punjabi as a subject in 10<sup>th</sup> class will study Mudli Punjabi (BSHL-xxx-22).

**Note 2\*\*:** Chemistry (BHCL-xxx-22 & BHCP-xxx-22) is compulsory for the Students with Non-Medical background. Students without Non-medical background should opt Managerial Economics-I (BBA-GE-xxx)

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**Examination and Evaluation**

<b>Theory</b>			
<b>S. No.</b>	<b>Evaluation criteria</b>	<b>Weightage in Marks</b>	<b>Remarks</b>
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/Seminars/Presentations/Continuous Evaluation	10	
4	End semester examination	60	External evaluation
5	Total	100	Marks may be rounded off to nearest integer.
<b>Practical</b>			
1	Evaluation of practical record/ Viva Voice/Attendance/Seminar/ Presentation	30	Internal evaluation
2	Final Practical Performance + Viva-Voce	20	External evaluation
3	Total	50	Marks may be rounded off to nearest integer.

**Attendance: (< 75%-0 marks, 76% – 80%-3 marks, 81% – 85%-4 marks, 86% – 90% -5 marks, ≥ 91%- 6 marks)**

**Instructions for Paper-Setter in B. Sc (Hons.) Mathematics**

**A. Scope**

1. The question papers should be prepared strictly in accordance with syllabus and format as prescribed by the University.
2. The question paper should cover the entire syllabus with uniform distribution among each units and weightage of marks for each question.

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3. The language of questions should be simple, direct, and documented clearly and unequivocally so that the candidates may have no difficulty in appreciating the scope and purpose of the questions. The length of the expected answer should be specified as far as possible in the question itself.
4. The distribution of marks to each question/answer should be indicated in the question paper properly.

**B. Type and difficulty level of question papers**

1. Questions should be framed in such a way as to test the student's intelligence and understanding of the applied aspects of the subject. The weightage of the marks as per the difficulty level of the question paper shall be as follows:

i)	Easy question	30%
ii)	Average questions	50%
iii)	Difficult questions	20%
2. The numerical content of the question paper should be up to 40%.

**C. Format of question paper**

1. Paper code and Paper-ID should be mentioned properly.
2. The question paper will consist of three sections: Sections-A, B and C.
3. Section-A is COMPULSORY consisting of TEN SHORT questions carrying two marks each (total 20 marks) covering the entire syllabus.
4. The Section-B consists of FOUR questions of eight marks each covering Unit I & II of syllabus (Taking two questions from each Unit I & II).
5. The Section-C consists of FOUR questions of eight marks each covering Unit III & IV of syllabus (Taking two questions from each Unit III & IV).
6. Sub-parts of the questions in Section B and C should be preferred for numerical/conceptual questions.
7. Attempt any five questions in all, selecting at least two questions from each of the two sections.

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Department of Applied Sciences**

Question paper pattern for MST:

Roll No:	No of pages:
<b>IK Gujral Punjab Technical University- Jalandhar</b>	
<b>Department of Mathematical Sciences</b>	
<b>Academic Session:</b>	
<b>Mid-Semester Test: I/II/III (Regular/reappear)</b>	<b>Date:</b>
<b>Programme: B.Sc. (Hons.) Mathematics</b>	<b>Semester:</b>
<b>Course Code:</b>	<b>Course:</b>
<b>Maximum Marks: 24</b>	<b>Time: 1 hour 30 minutes</b>

❖ Note: Section A is compulsory; Attempt any two questions from Section B and one question from Section C.

Section: A		Marks	Cos
1		2	
2		2	
3		2	
4		2	
Section: B			
5		4	
6		4	
7		4	
Section: C			
8		8	
9		8	

**Details of Course Objectives**

CO1	
CO2	
CO3	
CO4	
CO5	

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# I. K. Gujral Punjab Technical University

## Department of Mathematical Sciences

### Minutes of the meeting of Board of Studies (BOS) of Mathematics held on July 21, 2023

The meeting of Board of studies of Mathematics was held on 21/07/2023. The following members were present in the meeting

1. Dr. Ashish Arora, Professor, IKGPTU, Amritsar, Chairman (BOS)
2. Dr. Sanjay Kumar Srivastva, Professor, BCET Gurdaspur
3. Dr. Rajesh Narula, Asst. Prof., IKGPTU, Kapurthala
4. Dr. Gurjinder Singh, Asst. Prof., IKGPTU, Kapurthala
5. Dr. Megha Goyal, Bos Coordinator, IKGPTU, Kapurthala
6. Dr. Harpreet Kaur, Asst Prof, IKGPTU, Mohali
7. Dy. Director/ Assistant Director, Department of CR&A, IKGPTU
8. Ms. Rajveer Kaur, Student, B.Sc (Hons.) Mathematics 5<sup>th</sup> semester, IKGPTU, Kapurthala
9. Ms. Neha, student, M.Sc Mathematics 3<sup>rd</sup> semester, IKGPTU, Kapurthala

The following recommendations were given by the Board:

**Agenda 1. To finalize the Course content, Course outcomes and Program objectives of M.Sc. (Mathematics) 4<sup>th</sup> semester for the batch 2022 and onwards.**

The Course content, Course outcomes and Program objectives of M.Sc. (Mathematics) 4<sup>th</sup> semester for the batch 2022 and onwards have been finalized. The course content is upgraded more than 25%. The revisions in the syllabi of the following subjects have been proposed:

#### Semester-IV:

- (i) Operations Research, Coding theory, Discrete Mathematics, Advanced Numerical Methods, Advanced Number Theory

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- (ii) The students may opt for either Dissertation with two theory subjects (01 compulsory theory and 01 Elective theory) or 05 theory subjects (01 compulsory theory and 04 Elective theories).

All the proposed syllabus after recommended modifications will be sent to the BoS experts within 10 days for their consent.

The subject Codes of all the subjects have been proposed to be modified as per the following list:

S.No.	Previous Subject Code	Proposed Subject Code
1	UC-MSM-401-18	MSM-401-22
2	UC-MSM-501-18	MSM-501-22
3	UC-MSM-502-18	MSM-502-22
4	UC-MSM-503-18	MSM-503-22
5	UC-MSM-504-18	MSM-504-22
6	UC-MSM-505-18	MSM-505-22
7	UC-MSM-506-18	MSM-506-22
8	UC-MSM-507-18	MSM-507-22
9	UC-MSM-508-18	MSM-508-22
10	UC-MSM-509-18	MSM-509-22
11	UC-MSM-510-18	MSM-510-22
12	UC-MSM-511-18	MSM-511-22
13	UC-MSM-512-18	MSM-512-22
14	UC-MSM-601-18	MSM-601-22

**Agenda 2. To frame the Course contents, Course outcomes for the subjects in B.Sc. (Hons) Mathematics 3<sup>rd</sup> & 4<sup>th</sup> semester for the batch 2022 and onwards**

The scheme of B.Sc. (Hons) Mathematics (CBCS system) for 3<sup>rd</sup> & 4<sup>th</sup> semester for the batch 2022 and onwards have been suggested to be revised as per UGC model curriculum. The revised scheme is attached. The course contents, course outcomes for the subjects in B.Sc. (Hons) Mathematics - 3<sup>rd</sup> & 4<sup>th</sup> semester for the batch 2022 and onwards have been proposed to be reframed.

The course content is upgraded more than 25%. The revisions in the syllabi of the following subjects have been proposed:

- (i) All the proposed syllabi after recommended modifications will be sent to the BoS experts within 10 days for their consent.

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- (ii) In order to frame the content of 3<sup>rd</sup> sem in a systematic manner, the subject named Multivariate Calculus (proposed in 5<sup>th</sup> sem in UGC model curriculum) will be taught in 3<sup>rd</sup> sem and the subject named PDE and systems of ODE (proposed in 3<sup>rd</sup> sem in UGC model curriculum) will be taught in 5<sup>th</sup> sem.

**Agenda 3. To revise the Course content of Pre PhD course work in Mathematics for Batch 2023 and onwards**

The Experts have recommended to revise the course contents, course outcomes for the subjects offered in Pre PhD Course work in Mathematics for the batch 2023 and onwards. All the proposed syllabi after recommended modifications will be sent to the BoS experts within 10 days for their consent.

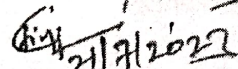
**Agenda 4. To include an audit course on Vedic Mathematics in 5<sup>th</sup> sem of B.Sc. (Hons) Mathematics for the batch 2022 and onwards**

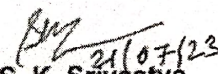
The Board members recommended that an audit course of Vedic Mathematics is to be introduced in the 5<sup>th</sup> sem of B.Sc. (Hons) Mathematics for the batch 2022 and onwards.

The meeting ended with the vote of thanks.

  
Prof. Ashish Arora

21/7/2023

  
Dr. Gurjinder Singh

  
Prof. S. K. Srivastva

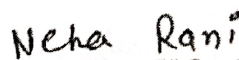
  
Dr. Megha Goyal

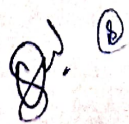
  
Dr. Rajesh Narula

  
Dr. Harpreet Kaur

  
Dy. Director/Assistant Director

  
Ms. Rajveer Kaur (Student B.Sc. 5<sup>th</sup> Sem)

  
Ms. Neha (Student, M.Sc. 3<sup>rd</sup> Sem)





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