

8TH MEETING OF THE BOARD OF STUDIES

DEPARTMENT OF MATHEMATICS



WEDNESDAY, NOVEMBER 20, 2024

**PROPOSED CHANGES IN THE SCHEME OF STUDIES ADS,
BS, BS SUCCEEDED BY ADS, MPHIL PROGRAMS**

MIRPUR UNIVERSITY OF SCIENCE AND TECHNOLOGY (MUST)

ALLAMA IQBAL ROAD, MIRPUR-10250

MIRPUR, AZAD JAMMU & KASHMIR

Members of the Board of Studies

The following members were have submitted their consents via email / whatsapp after the online meeting held on 20-11-2024:

Sr. #	Name	Designation	Signature
1	Dr. Kalim Ul-Haq Tariq Chairperson, Department of Mathematics, MUST, Mirpur AJ&K	Convener	
2	Prof. Dr. Muhammad Mushtaq Dept. of Mathematics, UET Lahore	Member/Subject Expert	
3	Prof. Dr. Qasim Ali Chaudhary Dept. of Mathematics, UET Lahore	Member/Subject Expert	
4	Dr. Jamshed Ahmed Dept. of Mathematics, University of Gujarat	Member/Subject Expert	
5	Ms. Rehanna Razaq Affiliated Colleges, Ghazi Ellahi Bhkash PGC, Mirpur AJK	Member	
6	Dr. Syed Zakir Hussain Bukhari, Associate Prof. Dept. of Mathematics, MUST, Mirpur AJK	Member	
7	The Controller of Examinations, MUST, Mirpur AJK	Member	
8	Representative of Alumni	Member	
9	Representative of Industry	Member	
10	The Registrar/Nominee, MUST, Mirpur AJK	Observer	
11	Director QEC/Nominee, MUST, Mirpur AJK	Observer	
12	Chairman, Semester Committee Dept. of Mathematics, MUST, Mirpur AJK	Secretary	

Introduction

The department of mathematics at MUST, Mirpur, AJ&K, was established in 2009. The first intake of the M.Sc program was inducted in the Spring 2010. The MPhil program was launched in the Spring 2011. In the Fall 2012, the department launched its BS program. The PhD program was started in the Spring 2015.

Mission Statement: The department of mathematics is committed to provide a supportive and conducive academic environment for learning through its various programs. The focus of these programs is to produce intellectual mathematicians equipped with critical thinking, problem solving skills, innovation, and high professional ethics who could bring positive changes in our society.

MODIFICATION IN THE SCHEME OF STUDY

BS MATHEMATICS

Sr. No.	Program	Semester	Previous Course	Proposed Amendment / New Offering	Will be Applicable w.e.f.
1	BS Mathematics	1 st	Course Code: HQT-1128 Course Title: Holy Quran with Translation Credit Hours: 0+0 S/U	Course Code: HQT-1128 Course Title: Holy Quran with Translation, Tajveed and Tafseer Credit Hours: 1+0	FA23 and onwards
2	BS Mathematics	1 st	Course Code: BIOT-1102 Course Title: Introduction to Microbiology Credit Hours: 1+0	Course Code: CHEM-1102 Course Title: Introduction to Chemistry Credit Hours: 1+0	FA24 and onwards
3	BS Mathematics	2 nd	Course Code: ICP-1227 Course Title: Ideology and Constitution of Pakistan Credit Hours: 2+0	Course Code: HUM-1203 Course Title Pakistan Studies Credit Hours: 2+0	FA24 and onwards

1.1 Semester-Wise Breakdown BS Mathematics (Proposed Changes)

Course Code	Course Title	Lec. Hrs.	Lab. Hrs.	Credit Hrs.
1st Year				
Semester-I				
MATH-1101	Calculus-I	3	0	3
CHEM-1102	Introduction to Chemistry	2	1	3
ENG-1107	Functional English	3	0	3
ISL-1112	Islamic Studies	2	0	2
QTR- 1124	Quantitative Reasoning 1	3	0	3
ICT-1126	Application of information and communication technologies	2	1	3
HQT-1128	Holy Quran with Translation, Tajveed and Tafseer	1	0	1
Semester-II				
MATH-1201	Calculus-II	3	0	3
MATH- 1202	Linear Algebra-I	3	0	3
ENG-1207	Expository Writing	3	0	3
PHY-1218	Physics-I	3	0	3
QTR-1224	Quantitative Reasoning II	3	0	3
HUM-1203	Pakistan Studies	2	0	2

Course Code: CHEM-1102

Title: Introduction to Chemistry

Credit Hours: 2+1

CONTENTS:

Atomic structure, Periodic table and Atomic properties, Types of Chemical Bonding, Gaseous, and Liquid states of matter.

Nature of covalent bond, Lewis structure, bond length. bond angles and bond energies. localized and delocalized bonding resonance valence bond theory and molecular orbital concepts. Hybridizations. sp^3 . sp^2 , and sp orbital. Dipole moments, inductive and resonance effects, rules for relative contribution from different resonance structures.

Modern concepts using mathematics for understanding the principles, Fundamental laws, Atomic molecular structure, states of matter. Equilibrium, Kinetic, and elementary inorganic, organic, and nuclear chemistry.

Physical chemistry

PRACTICALS:

1. Determination of percentage composition by surface tension, viscosity and refractive index method.
2. Determination of heat of solution for solids and liquids.
3. Quantitative measurement of colored salt of $KMnO_4$, $K_2Cr_2O_7$ in colorimeter.
4. Measurement of molecular weight by; Depression of freezing point.
5. Determination of transition temperature of $Na_2SO_4 \cdot 10 H_2O$; $Na_2CO_3 \cdot 10 H_2O$; $MgSO_4 \cdot 7 H_2O$

RECOMMENDED BOOKS:

1. Physical Chemistry by W.J. Moore, Prentice Hall College Div: 4th edition. June 1972.
2. Basic Inorganic Chemistry by Cotton Wilkinson LeGair 3rd Ed. 1995.
3. Organic Chemistry by T.R. Morrison and R N. Boyd Allyn and Bacon Inc. Longman Higher Education Division (a Pearson Education company); January 1, 1979.
4. Organic Chemistry by Khairat & Rahman. The Caravan Book House.
5. Crocleford H.D., H.W. Biard, F.W. Getzen & J.W. Nowell, "Laboratory Manual of
6. Physical Chemistry", 2nd Ed., John Wiley & Sons London.
7. Das R.C. and B. Behera, "Experimental Physical Chemistry", Tata McGraw Hill Publishing Company Limited.
8. Levitt B.P., "Findlay's Practical Physical Chemistry", 9th Ed., Longman Group Limited.

Course Code: HUM-1203

Title: Pak-Studies

Credit Hours: 02

Contents: Historical Perspective: Ideological Rationale with Special Reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-i-Azam Muhammad Ali Jinnah, Factors Leading to Muslim Separatism, Indus Civilization, Muslim Advent, Location and Geo-physical Features.

Political and Constitutional Phases: 1947-58, 1958-71, 1971-77, 1977-88, 1988-99, 1999 and onward

Economic Institutions and Issues, Society and Social Structure, Ethnicity, Foreign Policy of Pakistan and Challenges and Futuristic Outlook of Pakistan

Texts and Recommended books:

1. B. S. Javed, *State & Society in Pakistan*, The Macmillan Press Ltd, 1980.
2. A. S. Zaidi, *Issue in Pakistan's Economy*, Karachi: Oxford University Press, 2000.
3. M. Safdar, *Pakistan Political Roots & Development*, Lahore, 1994.
4. W. Wayne, *The Emergence of Bangladesh*, Washington, Institute of PPR, 1972.

MODIFICATION IN IN THE SCHEME OF STUDY

M.Phil. MATHEMATICS

Sr. No.	Program	Course type	Previous Courses	Proposed Amendment / New Offering	Will be Applicable w.e.f.
1	M.Phil Mathematics	Compulsory	Course Code: MATH-798 Course Title: Seminar Credit Hours: 0+1 Course Code: MATH-799 Course Title: Thesis Credit Hours: 0+6		
		Core	A list of elective courses is given. A student will have to complete 12 Credit Hours (4-courses).	A list of elective courses is given. A student will have to complete 24 Credit Hours (8-courses).	FA24 and onwards
		Elective	A list of elective courses is given. A student will have to complete 12 Credit Hours (4-courses).		

2.2 List of Courses for M.Phil Program (Proposed Scheme 2024)

A. Compulsory Requirements

Code	Course Title	Credit Hours
MATH-798	Seminar	01
MATH-799	Thesis	06

B. Elective Courses (24 credit hours)

A student will have to complete 24 credit hours of his/her course work from the following list of elective courses:

Code	Course Title	Credit Hours
MATH-701	Advanced Mathematical Physics	03
MATH-702	Advanced Complex Analysis	03
MATH-703	Advanced Topology	03
MATH-704	Advanced Abstract Algebra	03
MATH-705	Advanced Numerical Analysis	03
MATH-706	Advanced Partial Differential Equations	03
MATH-707	Geometric Functions Theory	03
MATH-708	Advanced Optimization Theory	03
MATH-709	Advanced Mathematical Modeling	03
MATH-710	Optimal Control	03
MATH-711	Mathematical Techniques for Boundary Value Problems	03
MATH-712	Non-Newtonian Fluid Mechanics	03
MATH-713	Fundamentals of the Theory of Fluids	03
MATH-714	Group Methods for Differential Equations	03
MATH-715	Fundamentals of Finite Element Methods	03
MATH-716	Advanced Integral Equations	03
MATH-717	Approximation Theory	03
MATH-718	Complex Analysis of Several Variables	03
MATH-719	Advanced Analytical Dynamics	03
MATH-720	Introduction to Robotics	03
MATH-721	Stochastic Processes	03
MATH-722	Estimation Theory	03
MATH-723	Time Series	03
MATH-724	Mathematical Ecology	03
MATH-725	Biomathematics	03
MATH-726	Advances in Discrete Mathematics and Applications	03
MATH-727	Graph Theory	03
MATH-728	Lie Algebra	03
MATH-729	Fuzzy Algebra	03