

# **DEPARTMENT OF MATHEMATICS**



**Dr. Muhammad Sagheer**  
HoD Mathematics

## Department of Mathematics

### MPhil Mathematics

#### 1. Admission Requirements

- A minimum of 16 years of education leading to BS/ MSc degree in Mathematics or equivalent.
- Minimum 2.00/4.00 CGPA or 50% marks
- Admission Test / HEC Approved Test

#### 2. Degree Requirements

A student admitted in this program will have to complete the degree requirements by following any one of the options given below:

	Area	Cr. Hrs.
(a)	24 Cr. Hrs course work with 6 Cr. Hrs thesis	30
(b)	27 Cr. Hrs course work with 3 Cr. Hrs project	30
(c)	Course work only (10 Courses)	30

There is no core and the students are required to register courses offered by the department from the list appended below:-

#### 3. Elective Courses

Course Title	Code	Cr. Hrs.
Advanced Partial Differential Equations	MT 5013	3
Advanced Wave Mechanics	MT 5023	3
Integral Equations	MT 5033	3
Celestial Mechanics	MT 5053	3

Advanced Mathematical Analysis	MT 5123	3
Topics in Complex Analysis	MT 5133	3
Advanced Functional Analysis	MT 5143	3
Fixed Point Theory	MT 5153	3
Advanced Numerical Techniques	MT 5213	3
Finite Element Methods	MT 5233	3
Finite Difference Methods	MT 5243	3
Advanced Group Theory	MT 5303	3
Computational Algebra	MT 5313	3
Non Commutative Algebra	MT 5323	3
Algebraic Cryptography	MT 5343	3
Advanced Fluid Dynamics	MT 5513	3
Non-Newtonian Fluid Mechanics	MT 5533	3
Computational Fluid Dynamics	MT 5543	3
Optimization Techniques	MT 5613	3
Linear System Theory	MT 5623	3
Nonlinear Control Systems	MT 5633	3
Applied Cryptography	MT 5643	3
Stochastic Processes	MT 5653	3
Financial Mathematics	MT xxxx	3
Operational Research	MT 5723	3
General Relativity	MT 5813	3
Special topics in Mathematics	MT 5xx3	3

#### 4. Research Thesis/Project

Students are required to qualify all the core courses listed below:

Course Title	Code	Cr. Hrs.
Research Thesis Part I	MT 5913	3
Research Thesis Part II	MT 5923	3
Research Project	MT 5933	3

#### 5. CGPA Requirement

A student is required to earn a minimum 3.00/4.00 CGPA on the completion of his degree requirements.

#### 6. Program Duration

This is normally a two years program comprising of 4 semesters. There will be a Fall and Spring semester in each year. The maximum duration to complete MS in Mathematics is 4 years.



## PhD MATHEMATICS

Through the PhD program in Mathematics, we emphasize on bringing the creative abilities of the researchers to the level where they can produce novel ideas to solve an existing problem. To choose a research area, a scholar will have a sufficiently good number of options available in the Department. The interest of scholars in the collaborative work of mathematical nature with other departments of the university will also be encouraged.

### Admission Requirements

- MS degree in relevant discipline\*
- Minimum CGPA 3.0/4.0 (Semester System) or 60% marks (Annual System)
- Admission Test / HEC approved Test
- Interview

### Degree Requirements

A PhD candidate shall be awarded degree on successful completion of the following requirements:

- a) 18 Cr. Hrs. Course Work with CGPA > 3

- b) Comprehensive Examination (written and oral)
- c) 30 Cr. Hrs. Research Work
- d) Synopsis Defense
- e) Thesis Foreign Evaluation
- f) Publication/Acceptance of at least one research paper.
- g) Local Defense

PhD scholars are required to comply with the following timeline:



Activity	Preferred Time	Maximum
Course Work	2 Semesters	3 Semesters
Comprehensive Exam	3 Semesters	5 Semesters
Synopsis Qualification	4 Semesters	6 Semesters
Thesis Submission	6 Semesters	10 Semesters

\* Relevancy shall be established by the Graduate Admission Committee.

