**M.Phil/PhD Scheme of study**

**Department of Mathematical Sciences,**

**University of Lakki Marwat, Lakki Marwat, KPK, Pakistan**



**University of Lakki Marwat, Lakki Marwat**

**Khyber Pukhtunkhwa**

**1. M.Phil in Mathematics**

**Degree Awarded:** Master of Philosophy in Mathematics (M.Phil in Mathematics)

**Note:** To earn M.Phil. degree, one must earn at least 24 Cr. Hrs of graduate level course work including two Core courses plus 6 Cr. Hrs of research project with Pass grade.

## **M.Phil (Semester-Wise Breakdown)**

**1st Semester**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Marks** | **Credit Hours** |
| **1** | MATH-XXX | Core | **100** | 3(3+0) |
| **2** | MATH-XXX | Elective | **100** | 3(3+0) |
| **3** | MATH-XXX | Elective | **100** | 3(3+0) |
| **4** | MATH-XXX | Elective | **100** | 3(3+0) |
| **Total** | **400** | **12** |

**2nd Semester**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Marks** | **Credit Hours** |
| **5** | MATH-XXX | Core | **100** | 3(3+0) |
| **6** | MATH-XXX | Elective | **100** | 3(3+0) |
| **7** | MATH-XXX | Elective | **100** | 3(3+0) |
| **8** | MATH-XXX | Elective | **100** | 3(3+0) |
| **Total** | **400** | **12** |

**Note:** After successful completion of Course work, department will decide to allow the student to enroll in his research work after proper evaluation.

**2. Doctor of Philosophy in Mathematics**

**Degree Awarded:** Doctor of Philosophy in Mathematics (PhD in Mathematics)

**Note:** To earn Ph.D. degree, one must earn at least 18 Cr. Hrs of graduate level course work plus 36 Cr. Hrs of research project with Pass grade.

## **Ph.D (Semester-Wise Breakdown)**

**1st Semester**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Credit Hours** |
| 1 | MATH-711 | Advanced Linear Algebra | 03 |
| 2 | MATH-712 | Computational Fluid Dynamics | 03 |
| 3 | MATH-721 | Advanced Partial Differential Equations | 03 |
|  | MATH-722 | Advanced Analysis |  |
| Total | 09 |

**2nd Semester**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Course Code** | **Course Title** | **Credit Hours** |
| 1 | MATH-723 | Elective-I | 03 |
| 2 | MATH-724 | Elective-II | 03 |
| 3 | MATH-725 | Elective-III | 03 |
| Total | 09 |

**Note:** After successful completion of Course work, department will decide to allow the student to enroll in his research work after proper evaluation.

**Core Courses:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S.N** | **Course Code** | **Course Name** | **Pre-Requisite** | **C.Hs** |
| 1 | MATH-711 | Advanced Linear Algebra |  | 3 |
| 2 | MATH-712 | Computational Fluid Dynamics |  | 3 |
| 3 | MATH-721 | Advanced Partial Differential Equations |  | 3 |
| 4 | MATH-722 | Advanced Analysis |  | 3 |

**Elective Courses for M.Phil/PhD:**

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N** | **Course Code** | **Course Name** | **C.Hs** |
| 1 | MATH-713 | Advanced Fixed Point Theory | 3 |
| 2 | MATH-714 | Newtonian Fluid Mechanics | 3 |
| 3 | MATH-715 | Advanced Real Analysis | 3 |
| 4 | MATH-716 | LA-semi groups | 3 |
| 5 | MATH-717 | Theory of Semirings | 3 |
| 6 | MATH-718 | Application of Fixed Point Theory in General Space | 3 |
| 7 | MATH-719 | Fixed Point Theory in Modular Function Spaces | 3 |
| 8 | MATH-811 | Numerical Solutions of Ordinary Differential Equations | 3 |
| 9 | MATH-813 | Numerical Solutions of Partial Differential Equations | 3 |
| 10 | MATH-814 | Evolutionary Computing | 3 |
| 11 | MATH-723 | Iterative Approximation Procedures | 3 |
| 12 | MATH-724 | Non-Newtonian Fluid Mechanics | 3 |
| 13 | MATH-725 | Advanced Numerical Methods | 3 |
| 14 | MATH-726 | Nonlinear Analysis and its Applications | 3 |
| 15 | MATH-727 | Mathematical Biology | 3 |
| 16 | MATH-728 | Mathematical Modeling | 3 |
| 17 | MATH-729 | Mathematical Techniques for Boundary value problems | 3 |
| 18 | MATH-821 | Advanced Perturbation Methods | 3 |
| 19 | MATH-822 | Fuzzy Sets and Their Application | 3 |
| 20 | MATH-823 | Fuzzy Fixed Point Theory | 3 |
| 21 | MATH-824 | Magneto Hydrodynamics | 3 |
| 22 | MATH-825 | Advanced Mathematical Statistics | 3 |
| 23 | MATH-826 | General Relativity | 3 |
| 24 | MATH-827 | Multivariate Analysis | 3 |
| 25 | MATH-828 | Finite Element Methods | 3 |
| 26 | MATH-829 | Advanced Special Function | 3 |
| 27 | MATH-799 | M.Phil Thesis | 6 |
| 28 | MATH-999 | Ph.D Thesis | 36 |