University Core Course (Total credit hours: 26)

Course Code	Course Title	Credit Hours
ENG-110	Functional English	3
ENG-111	Technical Writing and Communication	3
ENG-112	Creative Rhetoric and Writing	3
SS-101	Introduction to Philosophy	3
SS-102	Islamic Studies / Ethics	3
SS-103	Pakistan Studies	3
SS-104	Great Books	2
CS-100	Quantitative and Computational Reasoning	3+1
SS-106	Iqbaliat	2

General Courses (Credit Hours: 22)

Course Code	Course Title	Credit Hours
GS-100	Principles of Science	3
PH-120	Physics-I (Basic Electricity and Magnetism)	3
PH-121	Physics-II (Waves and Oscillations)	3
CS-ABC	Introduction to Programming	3+1
SS-112	Introduction to Psychology	3
MA-311	Mathematical Economics	3
SS-117	Introduction to Management	3

Foundation Courses (Credit Hours: 33)

Course Code	Fundamental Course Title	Credit Hours
MA-121	Calculus I (Differential Calculus)	3
MA-122	Calculus II (Integral Calculus)	3
MA-223	Calculus III (Multivariate Calculus)	3
MA-224	Algebra-I (Group Theory)	3
MA-321	Algebra-II (Ring Theory)	3
MA-123	Linear Algebra I	3
MA-124	Introduction to Formal Mathematics	3
MA-421	Discrete Mathematics	3
MA-221	Ordinary Differential Equations	3
MA-321	Complex Variables	3
MA-211	History of Mathematics	3

Major Courses (Credit Hours: 36)

Course Code	Major Course Title	Credit Hours
MA-333	Differential Geometry	3
MA-332	Partial Differential Equations	3
MA-431	Mathematical Statistics	3
MA-334	Functional Analysis	3
MA-232	Numerical Methods	3
MA-432	Linear Algebra II	3
MA-435	Mathematical Methods	3
MA-434	Operations Research	3
MA-433	Number Theory and Applications	3
MA-231	Introduction to Real Analysis I	3
MA-331	Introduction to Real Analysis II	3
MA-222	Probability and Statistics	3

Elective Courses (Credit Hours: 12)

Elective Courses	Credit Hours
Elective 1	3
Elective 2	3
Elective 3	3
Elective 4	3

Project (Credit Hours: 6)

Projects	Credit Hours
Project 1	3
Project 2	3

Scheme of Studies Semester-wise Breakdown

Semester-1

Course	Credit Hours
Calculus I (Differential Calculus)	3
Probability and Statistics	3
Functional English	3
Islamic Studies / Ethics	3
Quantitative and Computational Reasoning	3+1
Principles of Science	3
Total	**19**

Semester-2

Course	Credit Hours
Calculus II (Integral Calculus)	3
Linear Algebra I	3
Iqbaliyat	2
Technical Writing and Communication	3
Introduction to Programming	3+1
Physics I (Electricity & Magnetism)	3
Total	**18**

Semester-3

Course	Credit Hours
Calculus III (Multivariate Calculus)	3
Introduction to Formal Mathematics	3
Ordinary Differential Equations	3
Pakistan Studies	3
(Physics II) Waves and Oscillations	3
Great Books	2
Total	**17**

Semester-4

Course	Credit Hours
Introduction to Real Analysis 1	3
Algebra-I (Group Theory)	3
Discrete Mathematics	3
Numerical Methods	3
Introduction to Philosophy	3
Introduction to Management	3
Total	**18**

Course	Credit Hours
Introduction to Real analysis II	3
Linear Algebra II	3
Algebra II (Ring Theory)	3
Elective 1	3
Mathematical Economics	3
Creative Rhetoric and Writing	3
Total	**18**

Semester-6

Course	Credit Hours
Complex Variables	3
History of Mathematics	3
Functional Analysis	3
Elective 2	3
Introduction to Psychology	3
Total	**15**

Semester-6

Course Name	Credit Hours
Mathematical Statistics	3
Differential Geometry	3
Partial Differential Equations	3
Elective 3	3
Project 1	3
Total	**15**
Semester-8	**Credit Hours**
Number Theory and Applications	3
Operations Research	3
Mathematical Methods	3
Elective 4	3
Project 2	3
Total	**15**