Kohsar University, Murree

1. Scheme of Study for MS(CS) Fall 2022 onwards

Program Objectives:

The MS (Computer Science) comprises of both course work as well as research component. There are four 'core courses' aimed at strengthening the understanding and competence of students in computer science fundamentals. The University expects its MS graduates to pursue careers either as 'Computer Science Faculty Members' or as 'Software Development Managers' in the industry.

Learning Outcomes:

1. Students will be able to possess advanced knowledge of Computer Science field
2. Students will be able to think creatively and critically; to solve non-trivial problems
3. Students will be able to use computing knowledge to develop efficient solutions for real life problems
4. Students will be able to design solutions and can conduct research related activities

Eligibility:

Degree in relevant subject, earned from a recognized university after 16 years of education with at least 60% marks or CGPA of at least 2.0 (on a scale of 4.0).

The following core courses are recommended to be completed before entering the MS (CS) program.

1. Analysis of Algorithms
2. Assembly Lang. / Computer Architecture
3. Computer Networks
4. Computer Programming
5. Data Structures
6. Database Systems
7. Operating Systems

8. Software Engineering
9. Theory of Automata

A student selected for admission having deficiency in the above stated courses may be required to study a maximum of FOUR courses, which must be passed in the first two semesters. Deficiency courses shall be determined by the Graduate Studies Committee, before admitting the student.

A student cannot register in MS courses, unless all specified deficiency courses have been passed. A student has the option to pursue MS by undertaking a 6 credit hours MS Thesis.

Tentative Study Plan of MS with Specialization in Computer Science or Data Sciene

Semester I

Course Code	Course Title	Credit Hours
CSC-5XX	Core Course – I	3
CSC-5XX	Core Course – II	3
CSC-5XX	Core Course – III	3
	Total	**9**

Semester II

Course Code	Course Title	Credit Hours
CSC-5XX	Core Course – IV	3
CSC-5XX	Elective – I	3
CSC-5XX	Elective – II	3
CSC-5XX	Research Methodology	1
	Total	**10**

Semester III

Course Code	Course Title	Credit Hours
CSC-5XX	Elective – III	3
CSC-5XX	MS Thesis-I	3
	Total	**6**

Semester IV

Course Code	Course Title	Credit Hours
CSC-5XX	Elective-IV	3
CSC-5XX	MS Thesis-II	3
	Total	**6**

Registration in "MS Thesis - I" is allowed provided the student has

a. Earned at least 18 credits
b. Passed the "Research Methodology" course; AND
c. CGPA is equal to or more than 2.5.

Core Courses for MS (Computer Science)

CSC-501 Advanced Analysis of Algorithms

CSC-505 Advanced Operating Systems

CSC-507 Theory of Programming Languages

CSC-534 Theory of Automata – II EE502 Advanced Computer Architecture

List of Courses for MS(CS)

Course Code	Course Title	Credit Hours
CSC-5XX	Research methods for computer science	3
CSC-5XX	Statistical analysis	3
CSC-5XX	Introduction to mathematical logic	3
CSC-5XX	Advance operating system	3
CSC-5XX	Advance computer architecture	3
CSC-5XX	Data analysis and probabilistic inference	3
CSC-5XX	Information retrieval and data mining	3
CSC-5XX	Advance languages in computer science	3
CSC-5XX	E-government	3
CSC-5XX	E-business	3
CSC-5XX	Project management	3
CSC-5XX	Distributed database	3
CSC-5XX	User-centric design	3
CSC-5XX	Advance artificial intelligence	3
CSC-5XX	Computer vision and machine learning	3
CSC-5XX	Dynamic systems and deep learning	3
CSC-5XX	Advance statistical machine learning and pattern recognition	3
CSC-5XX	Computer graphics and animation	3
CSC-5XX	Neural network	3
CSC-5XX	Cryptography and network security	3
CSC-5XX	Advance computer networks	3
CSC-5XX	Topics in computer networking	3
CSC-5XX	Wireless and mobile networks	3
CSC-5XX	Advance network security	3
CSC-5XX	Intelligent and active networks	3
CSC-5XX	Network design and management	3
CSC-5XX	Enterprise networking	3
CSC-5XX	Network performance evaluation	3

CSC-5XX	Broadband and satellite communication	3
CSC-5XX	Mobile and pervasive computing	3
CSC-5XX	Cluster computing	3
CSC-5XX	Distributed computing	3
CSC-5XX	Network robotics	3
CSC-5XX	Semantic web	3
CSC-5XX	Information architecture	3
CSC-5XX	Web mining	3
CSC-5XX	Ontology engineering	3
CSC-5XX	Description logic	3
CSC-5XX	Web engineering	3
CSC-5XX	Requirements engineering	3
CSC-5XX	Software quality assurance	3
CSC-5XX	Software risk management	3
CSC-5XX	Software measurement and metrics	3
CSC-5XX	Software configuration management	3
CSC-5XX	Software system architecture	3
CSC-5XX	Component-based software engineering	3
CSC-5XX	Design patterns	3
CSC-5XX	Complex networks	3
CSC-5XX	Agent based modelling	3
CSC-5XX	Formal methods in software engineering	3
CSC-5XX	Advanced Computer Vision	3
CSC-5XX	Algorithmic trading	3
CSC-5XX	Bayesian Data Analysis	3
CSC-5XX	Bioinformatics	3
CSC-5XX	Computational Genomics	3
CSC-5XX	Data Visualization	3
CSC-5XX	Deep Reinforcement Learning	3
CSC-5XX	Distributed Data Processing	3
CSC-5XX	Distributed Machine Learning	3
CSC-5XX	High performance computing	3

CSC-5XX	Inference & Representation	3
CSC-5XX	Optimization Methods for Data Science and Machine Learning	3
CSC-5XX	Probabilistic Graphical Models	3
CSC-5XX	Scientific Computing in Finance	3
CSC-5XX	Social network analysis	3
CSC-5XX	Time series Analysis and Prediction	3

Award of Degree

For award of MS degree, a student must have:

a. Passed courses totalling at least 30 credit hours, including four core courses.
b. Obtained a CGPA of 2.5 or more.