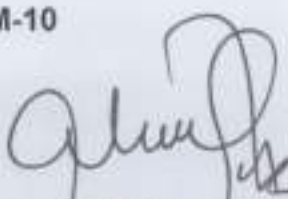


M-10

Director Academics

Approved 
 Dir. Acad 21/8/25

Dean, Faculty of Computing & AI

Recommended, please. A. 21/8/25

1. As per the decision of the 10th Academic Council Meeting, it is instructed to incorporate the following courses into the Scheme of Studies for all non-engineering undergraduate programs, effective from Fall 2025 intake and onwards: Details are given below.

Sr#	Course Code	Course Title	Prerequisite	Credit Hours	Semester
BSCS effective from Fall-25					
01	FQ100	Fehm-e-Quran I	Nil	0-1-1	1 st
02	FQ101	Fehm-e-Quran II	FQ100	0-1-1	2 nd
03	HU115	Pakistan Studies	Nil	2-0-2	1 st
BSIT effective from Fall-25					
01	FQ100	Fehm-e-Quran I	Nil	0-1-1	1 st
02	FQ101	Fehm-e-Quran II	FQ100	0-1-1	2 nd
03	HU115	Pakistan Studies	Nil	2-0-2	1 st
BSBI effective from Fall-25					
01	FQ100	Fehm-e-Quran I	Nil	0-1-1	1 st
02	FQ101	Fehm-e-Quran II	FQ100	0-1-1	2 nd
03	HU115	Pakistan Studies	Nil	2-0-2	1 st
MSCS effective from Fall-25					
01	FQ100	Fehm-e-Quran I	Nil	0-1-1	1 st
02	FQ101	Fehm-e-Quran II	FQ100	0-1-1	2 nd
PhDCS effective from Fall-25					
01	FQ100	Fehm-e-Quran I	Nil	0-1-1	1 st
02	FQ101	Fehm-e-Quran II	FQ100	0-1-1	2 nd

2. The revision of the Scheme of Studies (SoS) took place after incorporating suggestions from the Industrial and Academic Advisory Board members, the recommendations of the Departmental Board of Studies meeting held on August 22, 2025, and the Faculty Board of Studies meeting held on August 26, 2025. The SoS was reviewed and

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unanimously approved, with the inclusion of the above three courses in the respective semesters for the BSCS and BSIT programs, and two courses in the MSCS and PhDCS programs.

3. The updated roadmaps have been placed opposite for your reference. It is therefore requested that the revised roadmaps for BSCS, BSIT, MSCS, and PhDCS, effective from Fall 2025, be approved, and that the newly introduced courses be added to the AU automation system to ensure a smooth initiation of courses in Fall 2025.
4. During the NCEAC Zero Visit of BS Bioinformatics program, some suggestions were made by the Program Evaluators. The changes were discussed during the DBS and FBS and have been incorporated into the revised SoS.
5. The case is hereby submitted for approval.


DR. MEHDI HASSAN
Tenured Associate Professor
Chair,
Department of Computer Science

Dated: August 28, 2025





Scheme of Studies (SoS)

MS Computer Science

for Graduates having BS (CS) or Equivalent Degree

Department of Computer Science
Faculty of Computing and Artificial Intelligence (FCAI)
Air University, Islamabad

MS Computer Science Program

The Master of Science in Computer Science program provides students with the opportunity to combine a sound foundation in Computer Science with concentrated knowledge in the latest developments in particular areas. The program provides preparation in the advanced principles and processes of computation and training in applying these principles in application areas in industry, science, government, and business. The program emphasizes course work along with practical assignments and research projects.

The two-year MS Computer Science program consists of four core courses, Research methodology, and four electives from various areas of specializations followed by the MS CS thesis.

Eligibility Criteria

For Graduates having BS(CS) or Equivalent Degree

- 16 years education with minimum 130 Credit Hours in relevant subjects (Computer Science, Computer Engineering, Software Engineering, Information Technology, Artificial Intelligence, Data Science, Cyber Security, Computer Games Development, Bioinformatics, Information Security.)
- Computer Science Conversion Course 2 Years Degree Program referred to as "MCS" or "MSc (CS)".
- 16 Years Science and Engineering graduates, or related discipline are eligible to apply but they must cover deficiency courses.*
- BCS-3 years Degree Program – Student will be required to complete the deficiency of difference of total earned credit hours and 130 credit hours.

*Departmental Admission Committee can recommend 6 – 9 Credit Hours courses to overcome the deficient courses. A student cannot register in MS courses, unless all specified deficiency courses have been passed.

1. Analysis of Algorithms
2. Data Structures
3. Operating Systems
4. Theory of Automata

Degree Title

The title of degree is "Master of Science in Computer Science" (MScS).

Mahdi Hassan
Dr. NEHDI HASSAN
Associate Professor (Computer Science)
Chair
Department of Computer Science
Air University, Islamabad

05/09/25

(SALMA SARFRAZ)
Manager Academics
Air University, Islamabad

Distribution of total credit hours & core courses

Category or Area	Credit Hours
Core	15
Electives	12
Thesis	06
Total Credit Hours	33

Important Note:

1. Registration in "MS Thesis" is allowed to a student as per given condition:
 - (i) Earned at least 18 credits
 - (ii) Passed the Core courses; AND
 - (iii) At least 2.5 CGPA.
2. Students are expected to select at least two elective courses from the Specialization area. Other two elective courses may be selected from other specialization areas as offered.
3. Due to the advanced nature of the MSCS program and research orientation, the instructor of a course can redesign the objectives and contents of the course in consultation with the Chair Department.

Mehdi Hassan
27/05
DR. MEHDI HASSAN
Associate Professor (Tenured)
Chair
Department of Computer Science
Air University, Islamabad

Ant
05/04/25

Salma Sarfraz
02/04/25
(SALMA SARFRAZ)
Manager Academics
Air University, Islamabad

Semester Wise Study Plan

Sr#	Course Code	Course Title	Credit Hours
Semester - I			
1	CS 710	Research Methodology (Core)	1-0-1
2	CS 742	Advanced Theory of Automata (Core)	3-0-3
3	CS 775	Advanced Computer Architecture (Core)	3-0-3
4	CS 6XX	Elective-I	3-0-3
5	FQ 100	Fehm-e-Quran I	0-1-1
Semester CrHrs			10-1-11
Semester - II			Pre. Req.
1	CS 741	Advanced Analysis of Algorithms (Core)	3-0-3
2	CS 752	Advanced Operating Systems (Core)	3-0-3
3	CS 7XX	Elective-II	3-0-3
4	FQ 101	Fehm-e-Quran II	0-1-1
Semester CrHrs			9-1-10
Semester - III			
1	CS 7XX	Elective-III	3-0-3
2	CS 7XX	Elective-IV	3-0-3
3	CS799	MS Thesis	6-0-6
Semester CrHrs			12-0-12
Semester - IV			
1	CS799	MS Thesis (Continued)	6-0-6
Total CrHrs.			33

List of MS Core Courses

Sr No.	Course Code	Course Title	CrHrs
1.	CS-710	Research Methodology	3-0-3
2.	CS-741	Advanced Analysis of Algorithms	3-0-3
3.	CS-742	Advanced Theory of Automata	3-0-3
4.	CS-752	Advanced Operating Systems	3-0-3
5.	CS-775	Advanced Computer Architecture	3-0-3

SALMA SAJJAD
 (SALMA SAJJAD)
 Manager Academics
 Ait University, Islamabad.

Mehdi Hassan
DR. MEHDI HASSAN
 Associate Professor (Tenured)
 Chair
 Department of Computer Science
 Ait University, Islamabad

05/04/25

MS Computer Science Elective Courses

Sr. No.	Code	Course Title	CrHrs.
1.	CS-700	Advanced Knowledge-based Systems	3-0-3
2.	CS-701	Advanced Data Science	3-1-4
3.	CS-702	Applied Deep Learning	3-0-3
4.	CS-703	Applied Natural Language Processing	3-0-3
5.	CS-705	Advanced Artificial Intelligence	3-0-3
9.	CS-611	Cryptography	3-0-3
10.	CS-612	Data Privacy	3-0-3
11.	CS-711	Advanced Topics in Digital Forensics	3-0-3
12.	CS-712	Computational Intelligence	3-0-3
13.	CS-717	Statistical and Mathematical Methods for Data Analysis	3-0-3
14.	CS-718	Computer and Mathematical Modelling	3-0-3
15.	CS-716	Advanced Ethical Hacking	3-0-3
19.	CS-621	Quantum Computing and Information Theory	3-0-3
20.	CS-720	Applied Quantum Communication	3-0-3
21.	CS-726	Distributed Computing	3-0-3
24.	CS-630	Cloud Computing	3-0-3
25.	CS-634	Network Security	3-0-3
26.	CS-638	Wireless Networks	3-0-3
27.	CS-731	Cooperative Communication Networks	3-0-3
28.	CS-733	Optimization Theory for Computing	3-0-3
29.	CS-734	Advanced Network Security	3-0-3
30.	CS-736	Network Forensics	3-0-3
31.	CS-737	Advanced Topics in Wireless Networks	3-0-3
32.	CS-738	Internet of Things Design and Application	3-0-3
33.	CS-739	Advanced Wireless Systems and Networks	3-0-3
37.	CS-748	Advanced Evolutionary Computational Techniques	3-0-3
38.	CS-749	Blockchain Applications	3-0-3
40.	CS-651	Software Engineering	3-0-3
41.	CS-652	System Programming	3-0-3
42.	CS-653	Software Engineering and Formal Specifications	3-0-3
43.	CS-750	Advanced Formal Methods	3-0-3
45.	CS-669	Machine Learning and Neural Networks	3-0-3
46.	CS-762	Text Mining	3-0-3
47.	CS-763	Advanced Neural Networks	3-0-3
50.	CS-674	Embedded Computer Systems	3-0-3
51.	CS-774	Advanced Computer Vision	3-0-3
52.	CS-773	Information Visualization	3-0-3
53.	CS-777	Advanced Geographic Information System	3-0-3
54.	CS-778	Medical Image Analysis	3-0-3
56.	CS-682	Tools and Techniques for Data Science	3-0-3

57.	CS-684	Data Mining and Warehousing	3-0-3
58.	CS-685	Information Retrieval Techniques	3-0-3
59.	CS-780	Graph Theory and Algorithms	3-0-3
60.	CS-787	Advanced Topics in Big Data Analytics	3-0-3
62.	CS-698	Image Processing	3-0-3
63.	CS-699	Multimedia and Hypermedia Systems	3-0-3
64.	CS-790	Advanced Topics in Mathematical Modelling for Computer Science	3-0-3

List of equivalent/relevant courses for MSCS program

Sr. No	Code	Course Title	Equivalent Code	Equivalent Course	Cr. Hrs.
1.	CS-611	Cryptography	SY-623	Cryptography	3-0-3
2.	CS-612	Data Privacy	DS-603	Data Privacy	3-0-3
3.	CS-630	Cloud Computing	DS-722	Cloud Computing	3-0-3
4.	CS-651	Software Engineering	SE-600	Advanced Software Engineering	3-0-3
5.	CS-669	Machine Learning and Neural Networks	AI-631/DS-650/SE-651/GM-662/SY-609	Machine Learning	3-0-3
6.	CS-674	Embedded Computer Systems	SY-602	Embedded Systems	3-0-3
7.	CS-698	Image Processing	AI-602	Image Processing	3-0-3
8.	CS-702	Applied Deep Learning	DS-752	Deep Learning	3-0-3
9.	CS-703	Applied Natural Language Processing	DS-753	Natural Language Processing	3-0-3
10.	CS-711	Advanced Topics in Digital Forensics	CY-825	Advanced Topics in Computer Forensics	3-0-3
11.	CS-717	Statistical and Mathematical Methods for Data Analysis	DS-601	Statistical and Mathematical Methods for Data Analysis	3-0-3
12.	CS-734	Advanced Network Security	CY-734	Advanced Network Security	3-0-3
13.	CS-736	Network Forensics	CY-622	Network Forensics	3-0-3
14.	CS-774	Advanced Computer Vision	GM-661/AI-703	Computer Vision/Computer Vision: From Theory to Application	3-0-3
15.	CS-813	Special Topics in Cryptography	CY-744	Advanced Topics in Cryptography	3-0-3

*Students may take two electives from other departments of FCAI with the approval of Chair Department.