

M-10

Director Academics

Approved *[Signature]*
 Dir. Acad 21/8/25

Dean, Faculty of Computing & AI

Recommended, please. *[Signature]*
 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.

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

Dated: August 28, 2025

Scheme of Studies (SoS)

PhD Computer Science

For Graduates having MS (CS) or Equivalent Degree

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

PhD Computer Science Program

The Ph.D. program is designed to prepare students for a career in research. As such, it requires considerable self-directed study and independent research. The Ph.D. program is individually tailored to each student, requiring close cooperation between the student and his or her research adviser. Students are expected to identify their area of research during the first year of study, obtaining a faculty adviser who will agree to supervise the dissertation research.

The PhD program in Computer Science puts emphasis on rigorous coursework and cutting-edge research that should be published in peer-reviewed international conferences and journals. All PhD students are encouraged to tackle both coursework and research in parallel. Success in both these components is a requirement for the award of the PhD degree.

Degree Title

The title of degree is "PhD Computer Science".

Admission in PhD Computer Science program

(a) Admission Procedure

An applicant who wishes to enter PhD program of Air University will apply to Admission Office on a prescribed form. The admission office will confirm receipt of application to the applicant once submitted and will communicate further selection procedure to the applicant through web.

(b) Eligibility Criteria

Admission procedure, eligibility, and other matters related to admission are as follows: -

- i. 18 years education with minimum 30 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.)
- ii. 18 years Science and Engineering graduates, or related discipline are eligible to apply but they must cover deficiency courses (6 – 9 CrHrs). Departmental Admission Committee (DAC) will suggest the deficiency courses that needs to be cleared before getting admission in a PhD program.
- iii. At least 3.00/4.00 CGPA is required in MS degree
- iv. Pass the Air University (equivalent to Graduate record examination GRE/ Higher Education Aptitude test (HAT in relevant Category) with a passing score of 60% OR pass an equivalent test conducted by Air University OR conducted by testing body accredited / recognized by HEC.
- v. The candidates who qualify for the Entrance Test will be offered admission while others will be granted provisional admission with a

condition to clear mandatory requirement of GAT within First Semester.

- vi. DAC will conduct interviews for the selected candidates (admission offered) and provide final decision of admission as per the guidelines provided in AU PhD Policy 2023.

List of deficient courses:

1. Advanced Analysis of Algorithms
2. Advanced Computer Architecture
3. Advanced Operating Systems
4. Advanced Theory of Automata

(c) Statement of Purpose

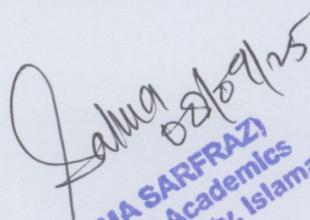
All applicants are required to submit a statement of purpose (minimum 3000 words) along with the application form, clearly writing their intended research interest and background, and preference/choice of Supervisor where applicable.

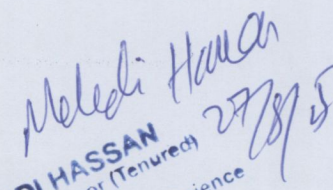
(d) Admission Interview and Offer for Admission

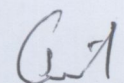
The applicant will be required to appear for an interview with the department concerned. Applicants will be communicated an Offer of Admission to the PhD program by Admission Office clearly mentioning that the applicant is a fresh applicant, readmission applicant or transfer applicant. Applicants will be required to send their written application before starting the registration process.

1. Comprehensive Exam (CE)

PhD student has to appear in the comprehensive exam as per the AU PhD Policy 2023.


(SALMA SARFRAZ)
Manager Academics
Air University, Islamabad


DR. MEHDI HASSAN
Associate Professor (Tenured)
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Department of Computer Science
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05/09/25

Program Structure for PhD Computer Science Program

Distribution of total credit hours

Semester	Task	Status	Credit Hours
1	Coursework*		09 ✓
2	Coursework	Continue	09 ✓
3	Comprehensive Exam + Thesis Registration	Continue	30 ✓
4	Research Proposal + Research Proposal Defense		(Continue)
5	Research + Publication		(Continue)
6	Thesis write-up + External Review + Thesis Defense	If not completed	(Continue)
7	Extension...		(Continue)

Category or Area	Credit Hours
PhD Course Work	18
Research Methodology	01*
PhD Research Credits	30 ✓
Fehm-e-Quran*	02* ✓
Total Credit Hours	51*

*It is mandatory for a student to take the "Research Methodology" course, if he/she did not study this course during Masters. Moreover, it is mandatory to study "Fehm e Quran" if he/she did not study during BS/MS degrees.

*Students must have studied at least half of their course at the 800 level during the degree.

Semester Wise Study Plan

Sr#	Course Code	Course Title	Credit Hours
Semester –I			
1.	CSXYZ	Course work (Elective-I)	3-0-3 ✓
2.	CSXYZ	Course work (Elective-II)	3-0-3 ✓
3.	CSXYZ	Course work (Elective-III)	3-0-3 ✓
4.	CS710	Research Methodology*	1-0-1 ✓
5.	FQ100	Fehm-e-Quran I*	0-1-1 ✓
Semester Cr. Hrs.			10-1-11
Semester –II			Pre. Req.
1.	CSXYZ	Course work (Elective-IV)	3-0-3 - ✓
2.	CSXYZ	Course work (Elective-V)	3-0-3 - ✓
3.	CSXYZ	Course work (Elective-VI)	3-0-3 - ✓
4.	FQ101	Fehm-e-Quran II*	0-1-1 FQ100 ✓
Semester Cr. Hrs.			9-1-10
Semester –III			
1.	Comprehensive Exam		
2.	CS899	Supervised Research (PhD Thesis), comprising research proposal defence and acceptance	30 ✓
Semester Cr. Hrs.			30
Semester –IV			
1.	CS899	Supervised Research (PhD Thesis), comprising research proposal defence and acceptance	Continue
Semester Cr. Hrs.			30 Thesis Credit
Semester-V			
1.	CS899	Supervised Research (PhD Thesis), comprising research proposal defence and acceptance	Continue
Semester Cr. Hrs.			30 Thesis Credit
Semester-VI			
1.	CS 899	Supervised Research (PhD Thesis), comprising research proposal defence and acceptance	Continue
Semester Cr. Hrs.			30 Thesis Credit
Semester VII and onwards (Extension if Not Completed)			
1.	CS899	Continuation of Supervised Research (PhD Thesis), comprising research proposal defence and acceptance	Continue
Total Credits			51* ✓

*As the choice of elective courses, all doctoral students may undertake at most 2 courses from other departments of the FC&AI as recommended by the Supervisor/GEC/Chair Department. Only relevant graduate level courses or equivalent will be counted towards the coursework requirements of PhD.

Salma 08/09/25
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05/09/25

List of Elective Courses

S.no	Code	Course Title	Cr. Hrs.
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
6.	CS-778	Medical Image Analysis	3-0-3
7.	CS-750	Advanced Formal Methods	3-0-3
8.	CS-711	Advanced Topics in Digital Forensics	3-0-3
9.	CS-712	Computational Intelligence	3-0-3
10.	CS-717	Statistical and Mathematical Methods for Data Analysis	3-0-3
11.	CS-718	Computer and Mathematical Modelling	3-0-3
12.	CS-716	Advanced Ethical Hacking	3-0-3
13.	CS-731	Cooperative Communication Networks	3-0-3
14.	CS-720	Applied Quantum Communication	3-0-3
15.	CS-726	Distributed Computing	3-0-3
16.	CS-733	Optimization Theory for Computing	3-0-3
17.	CS-734	Advanced Network Security	3-0-3
18.	CS-736	Network Forensics	3-0-3
19.	CS-737	Advanced Topics in Wireless Networks	3-0-3
20.	CS-738	Internet of Things Design and Application	3-0-3
21.	CS-739	Advanced Wireless Systems and Networks	3-0-3
22.	CS-777	Advanced Geographic Information System	3-0-3
23.	CS-762	Text Mining	3-0-3
24.	CS-763	Advanced Neural Networks	3-0-3

25.	CS-774	Advanced Computer Vision	3-0-3
26.	CS-890	Advanced Topics in Image Processing	3-0-3
27.	CS-840	Reinforcement Learning	3-0-3
28.	CS-861	Advanced Topics in Machine Learning	3-0-3
29.	CS-851	Special Topics in Software Engineering	3-0-3
30.	CS-876	Special Topics in Computer Vision	3-0-3
31.	CS-840	Reinforcement Learning	3-0-3
32.	CS-836	Special Topics in Internet of Things	3-0-3
33.	CS-835	Special Topics in Computer Networks	3-0-3
34.	CS-826	Advanced Distributed Computing	3-0-3

*This is the tentative list; additional courses may be added based on faculty expertise and availability.

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