

Admission Autumn 2024

PROSPECTUS

BS (Computer Science)

• Faculty of Sciences

AIOU



Allama Iqbal Open University, Islamabad

www.aiou.edu.pk

PROSPECTUS
OF
BS Computer Science Programmes
For
SEMESTER: Autumn, 2024



Directorate of International Collaboration & Exchange

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Vice-Chancellor's Message

Dear Student,

السلام عليكم

Allama Iqbal Open University (AIOU) is one of the mega universities of the world and it occupies a unique position in the education sector of Pakistan, because of its affordability and high quality distance and online academic programs. AIOU has now turned into the most favorite university of the country with high international repute. The university made a landmark progress by ensuring access to quality education for rural areas under-privileged students and the people of all ages particularly the females can now select and join the programs of their choice, while sitting at their residence and simultaneously with continuing their jobs. After assessing the success of many degree programs in Pakistan, AIOU is now going to offer a variety of range programs for the students residing worldwide. More than 1.3 million students are getting benefits from the high quality educational services of AIOU in all regions of the country through more than fifty regional offices of the university. It offers-suggests many undergraduate and postgraduate programs at rural and remote areas providing an unparalleled opportunity to all the poor and deprived segments of the society at an affordable cost. The university has recently digitalized all its student-support services for facilitating its students on priority basis. This digitization of the system, it is hoped, will enable AIOU students to get all discipline of educational programmes using their Learning Management system (LMS) portal support online.



Committed to your bright future

Prof. Dr. Nasir Mahmood
Vice Chancellor

COMPLETE PROCEDURE TO ENROLL IN AIOU PROGRAMME AND SUBMISSION OF FORM IN AIOU ISLAMABAD

International & Overseas Students Shall Submit their Admission using Online System

Dear Applicant

Allama Iqbal Open University and Directorate of International collaboration & Exchange welcome and thanks you for showing your interest in our programs. For online admission, please watch video guidelines:

Fresh Enrollment: <https://www.youtube.com/watch?v=14IPtu4vnk>

Continuing Students: <https://www.youtube.com/watch?v=d52VGci6XNQ>

Fee Depositing Process: <https://www.youtube.com/watch?v=A33WSSY9pbA&t=9s>

THANKS AND LET US KNOW HOW WE CAN HELP OR GUIDE YOUR FURTHER

Admission Schedule for International student:

From semester Autumn 2021, the AIOU has started offering of Matric, FA, Certificate Courses, AD, BS, B.Ed, BBA, PGD and MBA/MPA (COL) Level Programs for international students. Schedule of Admission is given below:

15th July 2024 to 20th August 2024

Address:

Directorate of International Collaboration and Exchange

Room No. 102, Block No. 11, Allam Iqbal Open University

Sector H-8, Islamabad, Pakistan

Telephone: 0092519572495

Email: overseas@aiou.edu.pk

IMPORTANT ACTIVITIES TO BE REMEMBERED

Activity	Spring Semester	Autumn Semester
Admissions	March-April	September- October
Study Period	June- October	December- April
Examinations	October- November	April- May
Result	January	July

Note: *Contact Directorate of International Collaboration & Exchange for exact schedule of activities.
Continuing Students are sent information for all activities by LMS/SMS.
Simultaneously information is placed on website (www.aiou.edu.pk).*

**MINIMUM AND MAXIMUM DURATION/SEMESTERS
FOR FACE TO FACE PROGRAMMES**

Sr. No.	Degree Level	Minimum Duration	Maximum Duration
1	Ph.D	3 years / 5 semesters	8 years *
2	MS/M.Phil/M.Sc (Hons)/MBA/COL MBA/MPA	2 years / 4 Semesters	4 Years **
3	M.A/M.Sc (2-Year)	2 Years / 4 Semesters	4 Years
4	BS (4-Year)	4 years / 8 Semesters	6 Years
5	Postgraduate Diploma (1-Year)	1 Year / 2 Semesters	2 Years
6	Certificate (6-Months)	6 Months / 1 Semester	1 Years
7	BS 2.5 years	2.5 Years/5 Semester	4 Years
8	BS 2 Years	2 years/ 8 Semester	4 Years

Evaluation/Assessment Criteria for all PGD/ADS/BS Face to Face Programmes

For Theory Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Assignment	10	20%	50% (In aggregate)
2	Assignment 2	10		
3	Mid Term	30	30%	
4	Attendance	100	Nil	70%
5	Final Exam	100	50%	50%

For Theory-Practical Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Assignment	10	20%	50% (In aggregate)
2	Assignment 2	10		
3	Mid Term	30	30%	
4	Practical	15		
5	Attendance	100	Nil	70%
6	Final Exam	100	50%	50%

For Practical/FYP Courses:

S.No.	Components	Total Marks	Weightage	Passing Marks
1	Attendance	100	Nil	70%
2	Final Exam	100	100%	50%

ALLAMA IQBAL OPEN UNIVERSITY

Allama Iqbal Open University, a mega university was established in 1974 under an Act of Parliament. The main campus of the university is situated in sector H-8, Islamabad. It was the second open university of the world and the first of its kind in Asia and Africa. The aim of establishing AIOU was to provide affordable and accessible education through distance learning at the doorsteps to those people who could not continue their educational journey through formal system of education. The University (AIOU) operates on semester system and admits students in Autumn and Spring semesters, Undergraduate admissions are being offered in both the semesters, whereas postgraduates are being offered once a year. The enrolled students are given course books specially prepared by the university on self instructional principles. However, at post graduate level reprints of foreign books alongwith allied material and university prepared study guides help students to polish their skills.

At present, the AIOU is offering programmes from Matric to PhD level in diverse disciplines comprised four faculties. The university has established study centres across the country where distance education students are provided necessary guidance by their respective tutors. AIOU is also offering four years under-graduate degrees.

Apart from curricular and extra-curricular activities during the academic year, the AIOU and its regional centres actively participate in the co-curricular activities by arranging educational and literary seminars, workshops and conferences, attended not

only by the students and faculties of the university, but also by the renowned dignitaries and scholars. For the science students and the research scholars, a science complex has been constructed, where they use the latest equipment of international standard for experiments and research. To meet the present-day challenges, internet facility is also available in the student hostel and the Central Library, where computers have been provided to enable students to access the latest information available through open source databases.

FACULTY OF SCIENCES

Faculty of Sciences form an integral part of the University, Since its establishment in 1982 with five teaching departments, it has undergone major development changes. It now comprises nine teaching and research departments which are offering courses at the undergraduate and postgraduate levels to more than ten thousand students. The Faculty operates under the basic guidelines of the University Act and on “Education for All as Convenient” basis so that maximum students get benefit from its academic programs and educational facilities. This principle has necessitated some structural changes in the non-formal mode, particularly at the postgraduate level, in the offering of theory courses and practical lab work. This conceptual adjustment has been quite successful and many in-service students are benefiting from postgraduate study programs. Improvement in qualification for a better life is a right of everyone and the faculty’s programs meet this challenge by offering opportunities to all. In particular, a significant number of beneficiaries are those who cannot afford education in formal institution due to a variety of reasons.

DEPARTMENT OF COMPUTER SCIENCE

The Department of Computer Science (DCS) was established in the year 2000. The Department has received recognition nation-wide due to its quality education. The department had developed curricula of the academic programs at various levels to meet the national and international standards as defined by Higher Education Commission. The curricula include Ph. D (computer Science), MS (Computer Science), BS (Computer Science) and Postgraduate Diploma (PGD) in Computer Science. The department is equipped with computing facilities and services including a digital class room and multimedia courseware development lab. The department has its own library in addition to central library of the university. The Department of Computer Science practices the multi-method teaching methodology i.e. face-to-face regular classes for BS (Computer Science) and MS (Computer Science). The online methodology is practiced for PGD (Computer Science) and Foreign Language (French). The facilities of Video/Teleconferencing are also in use for lectures/consultations in research-oriented degree of MS/PhD (Computer Science). In addition, the department also has a flavor of distance teaching in selected courses of BS (Computer Science) program like English, Pakistan Studies, and Islamic Studies etc. Besides graduate and undergraduate teaching, the department is actively

involved in research and development. For this purpose, Multimedia Centre and Open Learning Institute of Virtual Education (OLIVE) have been established under the umbrella of the department. The Multimedia center is equipped with technology related to Audio/Video production. It has successfully developed multimedia courseware for more than 20 courses, whereas OLIVE provided a framework for electronic delivery of these courses in online mode. In addition to research activities in the area of software engineering communication, networking, and multimedia, the department focuses on the eLearning research in instruction design, communication, course management, e-assessment, mobile learning and web technologies integration. The University has also developed linkages with San Jose' State University (SJSU) USA and Kent State University, USA. KSU is located in the heart of Silicon Valley and Kent State has strong education college with Technology Research Centers.

The principal aim of the Department of Computer Science is to produce graduates with a professional education and to undertake quality research in Computer Science and Related Information Technology areas. The specific objectives are to:

- i. Maintain an excellent reputation and professional accreditation for its taught degree programs.

- ii. Disseminate an appreciation of the current state and future directions of technological advances in the areas of Computer Science, Information Technology and e-learning.
- iii. Equip students with computer science knowledge and skills to cope with the social, economic, scientific, and technological challenges of the world outside.
- iv. Develop platform and systems for e-learning/mechanism for electronic delivery of courses to increase outreach to rural and remote areas.
- v. Conduct research in areas of e-learning, multimedia instructional design, web-based education, mobile learning and related areas in software engineering, information technology, and computer science.
- vi. Assist other departments and individuals to implement modern ICT in educational delivery.
- vii. Provide a leadership support in ICT based education in Pakistan.

BS COMPUTER SCIENCE (4-YEAR PROGRAM)

1. Introduction

The BS (CS) program is offered by the Department of Computer Science, AIOU. It is a four- years degree program, covering the recent trends in hardware, software and communication technologies. The program provides an understanding of the field through concepts, theory and techniques. The curriculum of the program has been

developed and regularly updated to meet the national, international, social and economic needs. The curriculum revision is normally based on need of fast changing disciplines, emerging technologies and international standards. The structure and other details of the program are confined to HEC with focus on ACM and IEEE-CS recent development.

2. Objectives

The objectives of the program are to:

- i. Develop professionals in the field of computer science.
- ii. Provide high quality education at low cost.
- iii. Provide knowledge to individuals seeking computer skills to increase their job opportunities in their current careers or to pursue new careers.
- iv. Learn in-depth knowledge of computer languages, software engineering, computer architecture, large-scale system software and multimedia in the design.
- v. Provide sufficient conceptual and skill based know how so that successful graduates could initiate IT career in industry and academia.

3. Eligibility

Minimum 50% marks in Intermediate/12 years schooling/A- Level (HSSC) or Equivalent with Mathematics are required for admission in BS(CS). Equivalency certificate by IBCC will be required in case

of education from some other country or system. The students who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics in first two semesters.

The departmental admission committee shall determine the eligibility accordingly.

4. Duration of Program

- i. The BS (CS) is 133 credit hours' program and may be completed in minimum four years (eight semesters).
- ii. Two semesters are offered in a year as Spring and Autumn.
- iii. Duration of each semester is 16 weeks.
- iv. The maximum time limit to complete the BS (CS) Program is Six Years from the date of first registration of the student in this program.

5. Scheme of Study

Semester-1

S#	Code	Title	Cre. Hrs.
1	CS 3504	Computer Programming	4(3+1)
2	CS3503	Applications of Information & Communication Technologies	3(2+1)
3	MATH 3516	Discrete Mathematics	3(3+0)
4	MATH 3502	Calculus-I	3(3+0)
5	Engl 3505	Functional English	3(3+0)
6	N/C MATH	Pre-Calculus 1	Deficiency

	3517		
Total 16 (14+2)			

Semester-2

S#	Code	Title	Cre. Hrs.
1	CS 3506	Object Oriented Programming	4(3+1)
2	CS 3507	Database Systems	4(3+1)
3	CS 3508	Digital Logic Design	3(2+1)
4	MATH 3509	Calculus-II	3(3+0)
5	MATH 3512	Linear Algebra	3(3+0)
6	MATH 3518	Pre-Calculus 2	Deficiency
Total 17 (14+3)			

Semester-3

S#	Code	Title	Cre. Hrs.
1	CS 4521	Data Structures	4(3+1)
2	CS 4522	Information Security	3(2+1)
3	CS 4523	Artificial Intelligence	3(2+1)
4	CS 4524	Computer Networks	3(2+1)
5	CS 4525	Software Engineering	3(3+0)
6	STAT 4509	Probability & Statistics	3(3+0)
Total 19 (15+4)			

Semester-4

S#	Code	Title	Cre. Hrs.
1	CS 4526	Computer Organization &	3(2+1)

		Assembly Language	
2	CS 4527	Theory of Automata	3 (3-0)
3	CS 4528	Advance Database Management Systems	3 (2-1)
4	CS 4509	Applied Physics	3(2+1)
5	ENGL3504	Expository Writing	3(3+0)
6	ITHC3501/ HADH3501	Islamic Studies / Ethics	2(2+0)
Total 17 (14+3)			

Semester-5

S#	Code	Title	Cre. Hrs.
1	CS 5502	Operating Systems	3(2+1)
2	CS 5503	HCI & Computer Graphics	3 (2+1)
3	CS 5504	Computer Architecture	3 (2+1)
4	-	Domain Elective 1	3(2+1)
5	-	Domain Elective 2	3(2+1)
6	MGT3504	Introduction to Management	2(2+0)
7	TFSR 3501	Fahm-E-Quran (Tajwid, Translation and Tafsir)	Non-Cre.
Total 17 (12+5)			

Semester-6

S#	Code	Title	Cre. Hrs.
1	CS 5505	Compiler Construction	3 (2+1)
2	CS 5506	Parallel and Distributed Computing	3 (2+1)
3	-	Domain Elective 3	3 (2+1)
4	-	Domain Elective 4	3 (2+1)

5	-	Domain Elective 5	3 (2+1)
6	-	Domain Elective 6	3 (2+1)
7	SERT3501	Seerat-e-Tayyaba	Non-Cre.
Total 18 (12+6)			

Semester-7

S#	Code	Title	Cre. Hrs.
1	CS 6501	Final Year Project – I	2(0+2)
2	CS 6502	Analysis and Design of Algorithm	3(3+0)
3	-	Domain Elective 7	3(2+1)
4	CS 6503	IT Marketing Concepts	3(3+0)
5	ENGL 3503	Technical and Business Writing	3(3+0)
6	MGT3503	Entrepreneurship	2(2+0)
7	CS 6507	Internship	3(0-3)
Total 19 (13+6)			

Semester-8

S#	Code	Title	Cre. Hrs.
1	CS 6504	Final Year Project – II	4(0+4)
2	PKST3502	Ideology and Constitution of Pakistan	2(2+0)
3	CS 6506	Professional Practices	2(2+0)
4	SOC3503	Civics and Community Engagement	2(2+0)
Total 10 (6+4)			

The student can select seven courses from the list of elective courses.

**List of electives offered in the BS(CS) Program:
Computer Science Elective List (Domain Electives):**

Domain Elective (2.2)			
S#	Code	Course Title (Per HEC 2023)	Cr. Hrs.
1.	CS 5507	Web Technologies	3 (2-1)
2.	CS 5508	Mobile Application Development 1	3 (2-1)
3.	CS 5509	Visual Programming	3 (2-1)
4.	CS 5510	Numerical Computing	3 (2-1)
5.	CS 5511	Web Engineering	3 (2-1)
6.	CS 5512	Cyber Security	3 (2-1)
7.	CS 5513	Software Testing & Quality Assurance	3 (2-1)
8.	CS 5514	Mobile Application Development 2	3 (2-1)
9.	CS 5515	Cloud Computing	3 (2-1)
10.	CS 5516	Computer Graphics	3 (2-1)
11.	CS 5517	Object Oriented Analysis & Design	3 (2-1)
Total Credit Hours			21 (14-7)

The Department of Computer Science reserves the right to offer or may not offer listed particular course depending upon the available faculty/laboratory resources and viable student's enrollment.

6. Fee Tariff

Item	Fee
Registration fee: (once, if not already registered)	US\$ 50
Admission fee:	US\$ 50
Per 3 Credit Hour Fee = US\$ 100 (100 x 6 Courses) = US\$ 600	US\$ 600
Total Fee for First Semester:	US\$ 700

7. Mode of Study

7.1 Medium of Instruction

The medium of instruction for BS (CS) Program is English.

7.2 Study Material

The class teacher will provide the study material. However, the students are advised to consult books from the list of recommended books.

7.3 Mode of Teaching

- i. The BS (CS) program is a non-merit-based program which is offered in Face-to-Face / Online Mode.
- ii. Under this program, the course work will be conducted through video-conferencing/internet. Distance Education will be delivered by faculty members from Department of Computer Science, Main Campus. A local faculty member/staff will be provided to assist in administrative and lab assignments

7.4 Assessment and Evaluation

See Page vi

<p>For any assistance contact: Directorate of International Collaboration & Exchange Phone: +92-51-9572495 E-mail: overseas@aiou.edu.pk</p>
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GENERAL INFORMATION

- i. The certificates/degrees of AIOU are equivalent to any other recognized Board/University.
- ii. A candidate is required to apply for admission online only.
- iii. If an applicant does not receive any information regarding admission within three months from submission of application, he/she should presume no admission.
- iv. A course taken by any student cannot be change during the semester. However, in real hardship cases, the change in courses will be allowed only before the start of study period after deposit of prescribed fee. The study period schedule is available on AIOU website.
- v. The address of a student will not be changed during the semester.
- vi. On payment of the registration fee, each student will be issued a student ID. This number must be quoted in all the future correspondence along with the roll number, course(s), code numbers and semester.
- vii. Study material shall be available at the LMS and on the AIOU website.
- viii. After confirmation of admission students are usually intimated about the part time tutors for each course. If you do not found information about tutors, you are required to contact the Directorate of International Collaboration & Exchange immediately without any delay.
- ix. Rules and regulations framed, enhanced and changed from time to time by the authorities, bodies of the university will be effective as deemed necessary. The student will have to abide by all such rules and regulations from the date of their implementation.
- x. A student who fails in continuous assessment component is not eligible to reappear but will be allowed to re-register for the same course at its next offering semester by the university.
- xi. It is the responsibility of the student to remain in touch with the department regarding the selected programme.
- xii. A student already admitted to a programme or a specialization of a programme shall not be allowed to transfer or to get admission to another programme unless he/she formally postpones it till the completion of the new programme or withdraws from the previous programme.
- xiii. After completion of a programme successfully, a student has to apply to Controller of Examinations for issuance of certificate/degree.

- xiv. The university reserves the right to change the contents of this prospectus without any prior notice as per university policy.
- xv. The student must inform the Directorate of IC & E in writing about admission mistakes within the period of 15 days, which is not according to the admission form/ check list or mistake in name and address. No request for any change will be entertained after the stipulated period.
- xvi. Admission cannot be granted if the fee deposited after due.
- xvii. In case of discrepancies in the name of student/ Father's name of the student or difference in name mentioned in his/her other educational certificates, the name on the Matric certificate of the student will be considered as correct name. The Examination Department shall also issue certificate/ degree on the said name.
- xviii. In case provision of forged documents for admission, not only the admission will be refused to the applicant but the fee deposited by him/her will also be forfeited. The university may proceed further in the matter.
- xix. The degree/diploma/certificate of the student will be quashed:
 - i) If any mistake found in compilation or declaration of result at any stage.
 - ii) If any candidate found ineligible for a degree/ diploma/certificate during the cross verification process of result and documents at any stage.

- iii) If found that candidate submitted forged/fake/ illegal document(s) in the University at any stage.

Note: Beware that University has not authorized any person or private institute to collect payment/forms. All the students are instructed to deposit fee by themselves. In case of any discrepancy in admission fee/ admission form the University will not be responsible and the student will have to face the consequences.

Availability of Learning Material

- i. Learning material can be downloaded from university website: www.aiou.edu.pk
- ii. All learning material would be available online for international/overseas students after the commencement of classes.
- iii. Student shall download the learning material and tally with the course codes for which he/she had been registered in the semester.
- iv. Students can get their learning material through AAGHI LMS portal.

Procedure for Fee Payment

International and Overseas Students will have to pay their fee Online as per Guided Procedure:

1. Go to olpay.aiou.edu.pk
2. Enter challan number and **click on "search"** button.
3. Check & tally your challan details with the generated challan then **click on "submit fee"** button.
4. Enter credit/debit card number, card holder name, expiry and CVV code (mentioned on back side of card).
5. **Click on "pay now"** button.
6. A successful payment notification will be appeared with an Order ID.
7. Write Order ID and Transaction Date on the space given below.
8. Save the Order ID in your record till confirmation of your admission.

REGULATIONS FOR REFUND OF ADMISSION FEE

- (i) The Applicant/candidate/student who have submitted his/her fee for Admissions but do not wish to continue and applied for refund of fee before the start of his/her study period as per Academic Calendar available on the AIOU website corresponding to his/her respective semester i.e Autumn or Spring, the fees will be refunded after the deduction @ 10% of the total fee.
- (ii) The Applicant/Candidate who was not eligible but deposited the fee for admission and applied for refund within one year from the date of fee deposit, the fee shall be refunded after deduction @15% of total fee.
- (iii) The student who has deposited his/her fee in excess of due fee that total excess amount shall be refunded or adjusted as the case may be.
- (iv) The Treasurer Department shall verify the fee of students and shall send the case to the Audit Department for pre-audit.
- (v) The cheque will be issued to the candidate by the Campus Payment Section (CPS), Treasurer's Department.
- (vi) In the case of death, the full fee will be refunded through crossed cheque in favour of the Blood Relative of deceased student, after fulfilling all the codal formalities. The refund case must be submitted within one year of fee deposit.
- (vii) In case the students who are not allowed/granted admission to a program offered by the University due to less enrollment/non formation of viable group/non offering of courses, full fee will be refunded to them.
- (viii) If the admission of an Applicant/Candidate is not matured due to any reason beyond the control of the University or due to unforeseen issues, the whole paid fee, without any deductions shall be refunded to the respective applicant/candidate. The refund case must be submitted within one year of fee deposit.

Note: Beware that University has not authorized any person or private institute to collect payment All the students are instructed to deposit fee by themselves. In case of any discrepancy in admission fee/ admission form the University will not be responsible and the student will have to face the consequences.

REFUND OF OTHER FEE

1. All kind of other fee including but not limited to Degree fee,
Re-appear exams fee, change off name / father name, examiner registration fee, tutor registration fee, late assignment evaluation fee, analysis fee, rechecking of answer scripts fee, NOC fee, subject/group change fee, thesis evaluation fee, thesis extension fee, job fee, tender fee tec. will not be refunded. Only excess fee deposited will be refunded/adjusted.
2. The extension in thesis fee in excess shall be refunded on approval of concerned Dean with certificate that fee was deposited in excess.
3. The amount deposited in university accounts by any person/firm (other than student), by mistake or in excess shall be refunded after verification of the amount deposited

IMPORTANT TELEPHONE NUMBERS

Sr. #	Name	Telephone Nos.
1.	Director Admissions	+92-51-9250043 +92-51-9571501
2.	Controller of Examinations	+92-51-9250012 +92-51-9250013 (Fax)
3.	Director Students Affairs	+92-51-9572400 +92-51-9572401
Directorate of International Collaboration & Exchange		
1.	Dr. Zahid Majeed Director Zahid_majeed@aiou.edu.pk	+92-51-9572450
2.	Sehrish Khan Assistant Director sehrish.khan@aiou.edu.pk	+92-51-9572471
3.	Mr. Muhammad Ajab Superintendent overseas@aiou.edu.pk	+92-51-9572495