मौलाना आज़ाद नेशनल उर्दू यूनिवर्सिटी   مولانا آزاد نیشنل اُردو یونیورسٹی

MAULANA AZAD NATIONAL URDU UNIVERSITY

(A Central University established by an Act of Parliament in 1998)

Accredited with 'A' grade by NAAC

**PROGRAMME: B.TECH
(COMPUTER SCIENCE)**

DURATION: 4 YEARS

REGULATIONS, CURRICULUM & SYLLABUS

Department of CS & IT

School of Computer Science & Information Technology

Maulana Azad National Urdu University, Hyderabad (India)

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

1. **Programme Title:**

   Bachelor of Technology four year degree programme in Computer Science.

2. **Duration and Mode:**

   Duration of programme for a student shall be four (4) years with eight consecutive semesters after admission. The mode of the programme is Regular (semester system).

3. **Objective:**

   To produce, theoretically and practically well-equipped, skilled professionals to cater to the requirements of Software, Hardware and Network Engineer, and state-of-the-art software development practices in the fast changing IT-enabled systems.

4. **Eligibility Criteria:**

   The eligibility of the candidate is Intermediate (10+2) with Mathematics, Physics and Chemistry (M.P.C) as a group or Mathematics, Physics, Chemistry and Biology (M.Bi.P.C) as another Group with 45% marks in aggregate. Polytechnic diploma engineers of all branches are also eligible. The knowledge of Urdu for the candidate is essential.

5. **Intake:**

   The number of seats for the program is fifty (50) for the first year and ten (10) more seats would be allocated for lateral entry into second year.

6. **Admission:**

   The admission to the B.Tech.(CS) programme is based on the rank secured by the candidate in a written test conducted by the University. Minimum qualifying marks shall be 30% in Entrance Test. The written test will be of 100 marks. Ten seats will be admitted in second year through Lateral entry on merit basis in his/her qualifying examination.

7. **Lateral Entry:**

   This is an option to a candidate with the Polytechnic Diploma engineers with CSE/IT/Electrical and Electronics with minimum 50% marks in aggregate from any recognized university or institution. The admission will be based on the merit in the qualifying diploma for all the students.

8. **Syllabus:** Each theory or lab courses shall have prescribed syllabus approved by BOS from time to time, as per following prescriptions:

   a. **Theory Courses:** Five (5) units largely based on ONE standard textbook and two Reference Books prescribed by the concerned teacher.

   b. **Lab Courses:** At least TEN (10) individual generic assignments and ONE Mini-Project, to be prescribed by the concerned teacher and approved by Head of Department.

9. **Evaluation of Project/Dissertation:**

   a. **Project at Bachelor Level:**

   Every candidate shall be required to submit project report as per the following details:-

   i. **Registration of Project Work:** A candidate is permitted to register for the project work after satisfying the attendance requirement of all the subjects (theory and practical subjects).

   ii. After satisfying the above clause, a candidate has to submit, in consultation with his project supervisor, the title, objective and plan of action of his project work to the Project Review Committee for its approval. Only after obtaining the approval of Project Review Committee the student can initiate the Project work.

   iii. Three copies of the Project Report certified by the supervisor shall be submitted to the

Department.

iv. The project report shall be examined by one examiner selected by the University. For this, Head of the Department shall submit a panel of 3 examiners, who are eminent in that field with the help of the concerned guide.

v. If the report of the examiner is not favorable, the candidate shall revise and resubmit the report, in the time frame as described by PRC. If the report of the examiner is unfavorable again, the report shall be rejected.

vi. If the report of the examiner is favorable, viva-voce examination shall be conducted by a board consisting of the supervisor,

vii. If the report of the viva-voce is unsatisfactory, the candidate will retake the viva-voce examination within three months.

1. **Definitions**

   a. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.

   b. **Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

   c. **Course:** Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures, tutorials, laboratory work, field work, outreach activities, project work, vocational training, viva, seminars, term papers, assignments, presentations, self-study etc. or a combination of some of these.

   d. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

   e. **Credit Point (CP):** The numerical value obtained by multiplying the grade point (GP) by the no. of credit(C) of the respective course i.e. CP= GP X C.

   f. **Credit(C):** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week, i.e. a course with assigned L-T-P: 3-0-2 or 3-1-0 will be equivalent to 4 credits weightage course.

   g. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

   h. **Grade Point (GP):** It is a numerical weight allotted to each letter grade on a 10 point scale.

   i. **Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

   j. **Programme:** An educational programme leading to award of a degree, diploma or certificate.

   k. **Semester Grade point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points (CPs) secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed upto two decimal places.

   l. **Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.

   m. **Transcript or Grade Card (GC) or Certificate:** Based on the grades earned, a grade

certificate shall be issued to all the registered students after every semester the grade certificate will display the course details (code, title, no. of credits, grades secured) along with SGPA of that semester and CGPA earned till date semester.

n.   **Sessional:** The internal assessments in theory papers conducted normally through two-tests, assignments, seminar / demonstrations and attendance with **<u>15%, 5%, 5% and 5%</u>** marks respectively. Sessional weightage shall be uniformly 30% and shall be normally performed by the concerned teacher.

o.   **Semester Examinations:** The comprehensive examinations conducted for summative evaluation of course. The duration of these examinations shall be 3 and 4 hours for theory and practical courses respectively; and the weightage shall be 70% for theory and 50% for practical uniformly for all the courses.

p.   **L-T-P:** The prescribed hours/week during a semester for Lecture-Tutorial-Practical to a particular course, in accordance with curriculum prescriptions based on respective nature.

q.   **Programme Span (PS):** The programme's maximum time for completion shall be additional two (2) years (4 semesters).

r.   **Board of Studies (BOS)**: The Board of Studies of the School of Computer Science & IT.

s.   **External examiner**: The external examiner shall mean an examiner who is not in the employment of the University or its affiliated institutions.

t.   Student shall mean a person admitted to the Schools of Computer Science & IT for any of the academic programmes to which this Ordinance is applicable.

2.   **General**

a.   An academic year will consist of two semesters; namely odd and even semesters commencing normally from July and January respectively.

b.   Promotion from odd-to-even semester shall be automatic for normal cases, otherwise shall be governed by Section 7 clauses.

c.   All the calculations of SGPA and CGPA shall be rounded to two decimal places.

3.   **Attendance**

a.   Attendance requirement for appearing in End Semester Examination of each of the semesters shall be 75%. Otherwise the student will be detained and shall not be allowed to appear in end semester examination. However, students having attendance from 65% to 75% may be allowed by a special permission from the Dean, school of CS&IT after showing the certified proofs with valid reasons for medical, sports, extra-curricular activities etc.

b.   If a student is detained due to shortage of attendance in any semester, he/she will not be promoted to the next semester. Thereafter he/she will become a regular student in next academic year of the same semester in which he/she was detained. As a regular student, he/she will appear in the mid semester examination/sessional as well as the End Semester Examination.

4.   **Performance Evaluation**

a.   **Sessional:** The laboratory course sessional evaluations shall be performed continuously based on practical performed by a student. Such evaluation may involve periodic assessment of documentation of the practical exercise/experiment, precision of experiment etc. In the case of Project /Dissertation the Internal Assessment may be based on periodical progress report.

b.   **End Semester Examination:** The Semester Examination shall commence during the first week of December/May for the Odd semester/Even semester courses, respectively.

c.   **Appointment of Examiners:** Head of the department shall normally appoint the examiners for different courses, selecting at least two other than the concerned teachers,

randomly for theory courses in each of the semesters. In case of Lab/Projects/Viva-Voce examinations there shall be one internal and one external examiner. A sizable panel of external examiners shall be approved by the BOS on annual basis to facilitate the appointment of external examiners.

d. **Moderation:** A committee duly constituted by BOS as follows, shall moderate the examination papers and shall have the right to improve / change the questions to a considerable extent:

      i. Dean (Chairman)

      ii. Head of the department (Convener)

      iii. Three Faculty Members nominated by the Dean

e. **Evaluation:** All the evaluations shall be performed in terms of marks, adding finally for each course out of 100 marks. The marks obtained by each student in courses shall be converted to Letter-Grades / Grade-Points using Grading Assignment Table, described in Section 5.

5. Grading System:

The grades and their description, along with equivalent numerical grade points are listed in the Grading Assignment Table as follows:

Grade Assignment Table

Range of Marks	Description	Grade	Grade Point
85 – 100	Outstanding	O	10
75 – 84	Excellent	A+	9
65 – 74	Very Good	A	8
55 – 64	Good	B+	7
50 – 54	Above Average	B	6
45 – 49	Average	C	5
40 – 44	Pass	P	4
0 – 39	Fail	F	0
Otherwise	Absent	Ab	0

a. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

b. For non-credit courses **'Satisfactory' or 'Unsatisfactory'** shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

6. Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

a. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

$$\textbf{SGPA } (S_i) = \sum(\text{Earned Credits } C_i \times \text{Grade Point } G_i)/\sum \text{Earned Credits } C_i;$$

Where C_i is the number of credits of the ith course and G_i is the Grade Point Scored by the student in the ith course.

b. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA } (C_i) = \sum(\text{Earned Credits } C_i \text{ x SGPA } S_i)/\sum C_i;$$

Where S_i is the SGPA of the ith semesters and C_i is the total number of credits in that semester.

c. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of the computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

Illustration for SGPA

Course	Credits	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Thus, **SGPA = 139/20 = 6.95**

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 20	Credit : 22	Credit : 25	Credit : 26
SGPA : 6.9	SGPA : 7.8	SGPA : 5.6	SGPA : 60
Semester 5	**Semester 6**		
Credit : 26	Credit : 25		
SGPA : 6.3	SGPA : 8.0		

Thus, **CGPA** = 20 x 6.9 + 22 x 7.8 + 25 x5.6 +26 X 6.0 + 26 x 6.3 +25 x 8.0 = 6.73

i.

ii. Transcripts (Format):

Based on the above recommendations on Letter grades, grade points, SGPA and CGPA, the Higher Education Institutions may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

7. Promotion Policy:

The continuation/discontinuation and Exit with Degree shall be governed as follows:

a) A candidate shall be allowed to continue the programme or be allowed to promote in next year provided he/she maintains a CGPA 5.0 in theory and lab courses at the end of the even semesters (e.g. after 2nd, 4th and 6th semester for the respective academic

programmes). Otherwise, the candidate shall remain in the same year as Ex-students till he/she maintains the minimum required CGPA as 5.0.

b) A candidate shall have to re-appear in the end semester examination of the courses having Fail grade or Absent (as per Grade Assignment Table in section 5 clause), as and when the same course is offered during Regular Course of Study. Such candidates/students shall retain their sessional marks.

c) A candidate who has been detained due to shortage of attendance shall not be allowed to be promoted to the next semester and he/she will be required to take re-admission as a Regular Student and repeat all courses of the said semester with the next batch of students.

Conduct of Practical Examinations

All examiners shall be appointed by the Dean, School of Computer Science & IT for practical examinations/project report evaluation /training report assessment of B.Tech and MCA programs. However, recommendations for names of examiners shall be obtained from the list of panel members approved in the Boards of Studies and any other examiner(s) recommended by the Dean, School of CS&IT.

Conduct of M.Tech Dissertation/Thesis

For dissertation/thesis for M.Tech (Computer Science) program, the evaluation shall be done and marks shall be awarded by a Committee comprising Head of the department, the Supervisor and one or more external examiners. The Supervisor shall award marks out of 40%, and the external examiner(s) out of 60%. The examiners shall be appointed by the Dean School of CS&IT, out of a panel of three or more names suggested by the Head, Department of CS&IT in consultation with the supervisor.

8. Division and Position:

Division shall be awarded in the following manner, to the candidates on the basis of their respective CGPA:

CGPA ≥ 8	$_1$st	Division with Distinction
$6.5 \leq$ CGPA < 8	$_1$st	Division
Otherwise	2nd	Division

However, First, Second or Third position shall be awarded to the candidates, provided they meet the following conditions:

a) Rank shall be solely decided on the final CGPA, on completion of degree credit requirement.

b) The candidate has completed all the prescribed requirements, in the prescribed programme duration.

c) The candidate has passed / secured valid grades in all the prescribed courses, in the first attempt.

d) No disciplinary action is pending or has ever been lodged against him/her.

e) In case of an exceptional tie, both candidates shall be awarded the same rank.

9. Review and Re-evaluation:

Review and re-evaluation of the answer sheets shall be as per the university rules.

10. Grade Card:

At the end of each semester, a student will be given a 'Grade Card' which will contain Course Code, Title, Credits, Grades Awarded, Earned Credits and Earned Point secured by him/her in each course, together with his/her SGPA in that semester. On the completion of the programme, a Final Grade Card will be issued to the student, giving full semester-wise details about the

absolute marks and grades obtained by him/her in each course together with his/her SGPA and also the CGPA and Division awarded to him/her.

11. Equivalence:

Percentage (P) equivalent to CGPA earned by a candidate may be calculated using the following formula:

$$P = 9.5 \times CGPA$$

12. Conduct of Teaching

a. Course Co-ordinator

Every course will be taught by one or more teachers. The Head of the department with consultation of Dean will allocate the teaching load to the teacher(s) and will also designate a course co-ordinator for each course. If more than one department is involved in the teaching of the course, the course co-ordinator will be from the coordinating department. The course co-ordinator will coordinate all the work related to attendance, course work, examination and evaluation. It is necessary that the students are informed about the course co-ordinator so that they may contact him/her about any problems regarding the course.

b. Display of Attendance, Marks etc.

It is essential that the attendance should be displayed to the students twice in a semester, once in the middle and then at the end of a semester by the teacher(s) concerned. The sessional marks should be displayed to students normally within 15 days of the examination. The total Sessional marks should be displayed to the students before the beginning of the end-semester examinations. The course co-ordinator will ensure that the teachers associated with the course make such displays.

c. Offering Courses

Courses will be offered by the department concerned as per the schedule given in the relevant Curriculum. More choices in elective courses will be offered depending on the availability of the staff and other facilities and therefore any particular elective course may not be offered even though it may exist in the list of possible elective courses. Department may also offer a course in both the semesters even though it may be shown in particular semesters.

d. Syllabus

Each course syllabus which will be distributed to the students. The teacher(s) concerned should ensure that some portion, beyond the syllabus, should also be covered in the class.

13. Correction of Errors

In case of any error is detected in the marks recorded on the award list, the examiner(s) concerned shall make a request to correct the mistake to the Dean, School of CS & IT through the Head of the department, and shall attach relevant documentary evidence. A committee consisting of the following members shall take suitable remedial measures depending upon the merit of the case.

    a. Dean (Chairman)

    b. Head of the department.

    c. Two Faculty Member nominated by the Dean

14. Examinations

e. Sessional Examination

Sessional examination(s) of each course is one hour duration and shall be conducted as per norms and schedule notified by the office of the Head of department in each semester.

f. End-Semester Examination

End-semester examination(s) of each theory course shall be of three hours duration and will be

conducted as per norms and schedule notified by the Controller of Examination. The end semester examinations of laboratory/practical courses, and other courses such as seminar, colloquium, field work, project, dissertation etc. shall be conducted as notified by the HOD.

15. Degree Requirement

A student who earns total specified credits according to the curriculum and fulfills such other conditions as may be mentioned in the curriculum of the programme, shall be awarded the degree. He/she must also pay all University dues as per rules. Moreover, there should be no case of indiscipline pending against him/her.