PONDICHERRY UNIVERSITY
(A CENTRAL UNIVERSITY)
SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE

REGULATIONS, CURRICULUM & SYLLABUS
(For the University Department of Computer Science)

B.Sc. (Honors) DEGREE PROGRAMME

B.Sc. Computer Science (Honors with Research) – Specialization in CCS / AI & ML / DS / C & DS / IT / CA

B.Sc. Computer Science (Honors) – Specialization in CCS / AI & ML / DS / C & DS / IT / CA

(Under the National Education Policy 2020)

Effective from the Academic Year 2023 - 2024

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1. PREAMBLE

This four-year Bachelor of Science (B.Sc.) programme in Computer Science with Specializations in *Core Computer Science (CCS), Artificial Intelligence and Machine Learning (AI & ML), Data Science (DS), Cyber and Digital Sciences (C & DS), Information Technology (IT), and Computer Applications (CA)* is designed to offer a diverse and in-depth exploration of the ever-evolving field of computing.

With a solid foundation in core computer science principles, this programme provides specialized tracks that provide to a wide range of knowledge and career aspirations as follows

- *CCS:* Gain expertise in foundational computer science concepts and methodologies.

- *AI & ML:* Explore the cutting-edge fields of AI and ML, developing intelligent systems.

- *DS:* Dive into the world of data analysis, machine learning, and statistical modelling.

- *C & DS:* Focus on cybersecurity and digital systems to safeguard information.

- *IT:* Acquire practical skills for solving real-world challenges in information technology.

- *CA:* Develop applications to address diverse computing needs.

Candidates in the B.Sc. Computer Science programme have flexible exit options, allowing them to receive recognition based on their achievements at different stages:

- Exit after 2nd Semester: *UG Certificate in Computer Science.*

- Exit after 4th Semester: *UG Diploma in Computer Science.*

- Exit after 6th Semester: *UG Degree in Computer Science.*

- On completion of 8th Semester:

  - *B.Sc. Computer Science (Honors with Research) for candidates completing a comprehensive research project.*

  - *B.Sc. Computer Science (Honors) for candidates completing three additional theory courses in place of research.*

2. PROGRAMME OUTCOMES

Upon completion of the Bachelor of Science (B.Sc.) programme in Computer Science, students will demonstrate the following outcomes at:

UG Certificate Level

- Acquire foundational knowledge in computer science.

- Demonstrate basic skills in problem-solving and programming.

UG Diploma Level

- Develop intermediate-level knowledge and skills in computer science.

- Apply problem-solving and programming concepts to practical scenarios.

UG Degree Level

- Attain advanced knowledge and skills in computer science.

- Demonstrate proficiency in problem-solving, programming, and system design.

UG Degree with Honors

- Demonstrate proficiency in programming languages and software development.

- Apply principles of modern algorithmic techniques to solve complex problems.

- Design and implement efficient solutions for real-world computing challenges.

- Exhibit effective communication skills in conveying technical concepts orally and in writing.

- Engage in collaborative projects and demonstrate the ability to work effectively in a team.

- Apply ethical considerations in professional and societal contexts related to computer science.

- Possess a comprehensive understanding of core computer science concepts.

- Exhibit a commitment to lifelong learning and adaptability to evolving technologies.

3. DEFINITIONS

Terms used in the NEP Regulations shall have the meaning assigned to them as given below unless the context otherwise requires:

A. Credit: A credit is the number of hours of instruction required per week for the given subject in a given semester of 16-18 weeks. One credit is equivalent to 15 hours of teaching (lecture or tutorial) or 30 hours of practice or field work or community engagement and service per Semester.

B. Academic Year: Means the year starting on 1st day of July and ends on the 30th day of June succeeding year.

C. Residence time: Means the time a student spends for attending classes in the College/Institution (either Online/Offline) as a full-time student and enrolled in any Academic programme of the Institution.

D. Semester: Means 18 weeks (90 Working days) of teaching-learning session of which two weeks shall be set apart for examinations and evaluation.

E. Grade: Means a letter grade assigned to a student in a course for his/her performance at academic sessions as denoted in symbols of: O(Outstanding), A+(Excellent), A(Very Good), B+(Good), B(Above Average), C(Average), P(Pass), F(Fail) and Ab(Absent) with a numeric value of O=10, A+=9, A=8, B+=7, B=6, C=5, P=4, and F=0, Ab=0.

F. Grade Point Average (GPA): Means an average of the Grades secured by a student in all courses in a given academic session duly weighted by the number of credits associated to each of the courses.

G. Cumulative GPA (CGPA): Means the weighted average of all courses the student has taken in the entire programme of study.

H. Common courses: Means the set of courses that all students who are admitted are required to study; these courses include, Languages (English- Modern Indian languages), NEP specific courses viz. Understanding India, Environmental sciences/Education, Health and wellbeing/Yoga, and Digital & Technological solutions.

I. Major Discipline Courses: Means the core subjects mandatory for the Computer Science discipline. These courses are common across all specializations of Computer Science.

J. Minor Discipline Courses: Means allied/elective/specialization specific subjects of Computer Science discipline. Based on the set of Minor Discipline Courses the candidate study, specialization in Computer Science will be awarded. Eg: B.Sc. (Computer Science) with minor discipline courses in Artificial Intelligence and Machine Learning will be awarded B.Sc. Computer Science with Specialization in AI&ML.

K. Credit Requirements: For a Degree/Diploma/Certificate Programme means the minimum number of credits that a student shall accumulate to achieve the status of being qualified to receive the said Degree, Diploma/Certificate as the case may be.

L. Exit option: Means the option exercised by the student, to leave the Programme at the end of any given Academic year.

M: Lateral entry: Means a student being admitted into an ongoing Programme of the University otherwise than in the 1st year of the programme.

N: Vocational Studies/Education: Means set of activities for participation in an approved project or practical or lab, practices of application of scientific theories, studio activities involving students in creative artistic activities, workshop-based activities, field-based shop-floor learning, and Community engagement services, etc. **(These courses are expected to enable students to incorporate the learned skills in daily life and start up entrepreneurship.)**

O: Skill-based learning/project: Means activities designed to understand the different socio-economic contexts, first-hand understanding of the policies, regulations, organizational structures, processes, and programmes that guide the development process.

P: Work-based internship: Means structured internships with Software Companies, Research and Higher Educational Institution Laboratories, Corporate offices, etc. which will further improve employability.

4. AWARD OF UG DEGREE/DIPLOMA/CERTIFICATE

Four years B.Sc. Degree Programme shall have options for earning a Certificate / Diploma / UG Degree / UG Degree with Honors based on the exit option exercised by the candidates.

The duration of the UG programme is 4 years or 8 semesters and Students have to complete the programme within the stipulated maximum period of seven years. Students who desire to undergo a 3-year UG Programme will be allowed to exit after completion of the 3rd year. If a student wants to leave after the completion of the first or second year, the student will be given a UG Certificate or UG Diploma, respectively, provided they secure the prescribed number of credits (as given in the section 4.3).

4.1 Degree and Nomenclature
Candidates who complete Eight semesters and earn a minimum of 164 credits will be awarded either of the following degrees after successful completion of the other requirements.

- B.Sc. Computer Science (Honors with Research) *
- B.Sc. Computer Science (Honors) **

  * for candidates who complete a research project work in the Eighth Semester.

  ** for candidates who complete 3 theory courses (MJD 21, MJD 22, and MJD 23) instead of the research project work in the Eighth Semester.

4.2 Degree with Specialization
Out of the above said 164 credits the candidates shall earn 115 credits from the Hardcore courses and the remaining 49 credits shall be earned from the subjects they choose to study from the list of softcore courses. These 49 credits are assigned across 13 courses as listed below:

Pondicherry University Department of Computer Science offers different specializations in Computer Science. Courses offered in each specialization vary from the other specializations based on the above set of 13 courses the candidates choose to study. Annexure 1 to Annexure 6 gives the details of all the specialization, which are offered at Pondicherry University Department of Computer Science.

Also, the candidates are expected to do their internships and research projects in their chosen specialization of study.

Courses	Credits per course	Total Credits
MID 1 to MID 8	4	8 x 4 = 32 Credits
MJD 19 & MJD 20	4	2 x 4 = 08 Credits
SEC 1, SEC 2 & SEC 3	3	3 x 3 = 09 Credits
Total Credits		**49 Credits**
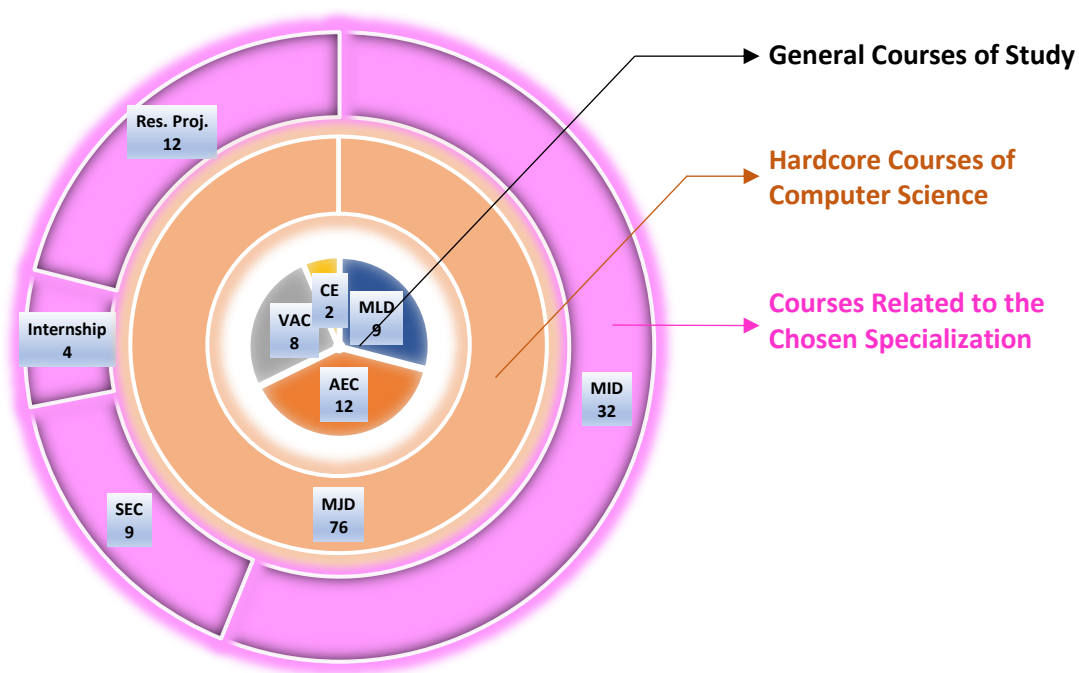
Annexure	Specialization	Degree Awarded
I	Core Computer Science	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Core Computer Science
II	Artificial Intelligence & Machine Learning	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Artificial Intelligence &Machine Learning
III	Data Science	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Data Science
IV	Cyber & Digital Sciences	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Cyber and Digital Sciences
V	Information Technology	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Information Technology
VI	Computer Applications	B.Sc. Computer Science (Honors / Honors with Research) – Specialization in Computer Applications

Candidates shall be awarded the degrees with specialization based on the curriculum they choose and complete in the four years of study from the Annexures I to VI.

Example: Candidates who choose to study the AI and ML courses from Annexure II shall be awarded the degree B.Sc. Computer Science (Honors / Honors with Research) - Specialization in AI and ML and candidates who choose to study the Data Science courses from Annexure III shall be awarded B.Sc. Computer Science (Honors / Honors with Research) - Specialization in Data Science etc.

Candidates once chosen a particular specialization in their I semester are expected to complete the same specialization for the full duration of the degree programme to get the award of the degree in the respective specialization. Change of specialization shall not be permitted as it may lead to disconnect the continuous skill upgradation of the candidate in different levels of curriculum expectations.

The Department of Computer Science shall decide the list of specializations going to be offered for a particular academic year and the same will be notified in the Admission brochure. Such decisions shall be based on the availability of faculty members in the identified specializations, current trends, employability and higher education prospects, etc.

4.3 Exit Options
Candidates can exercise the following exit options and obtain the said certificate or diploma or degree, if the minimum required credits are earned and other conditions are met.

Exit after 2nd Semester: UG Certificate in (as in Table given below) will be awarded for candidates who exit the course at the end of 2nd semester and earned a minimum of 42 credits and have completed

a Summer Internship of 4 credits for 4 – 6 weeks duration, during the summer vacation post 2nd semester.

Exit after 4th Semester: UG Diploma in <u>(as in Table given below)</u> will be awarded for candidates who exit the course at the end of 4th semester and earned a minimum of 84 credits and have completed a Summer Internship of 4 credits for 4 – 6 weeks duration, during the summer vacation post 4th semester.

Exit after 6th Semester: UG Degree in <u>(as in Table given below)</u> will be awarded for candidates who exit the course at the end of 6th semester and earned a minimum of 124 credits and have completed a Summer Internship of 4 credits for 4 – 6 weeks duration, during the summer vacation post 4th semester.

Candidates shall be awarded different Certificate/Diploma/Degree based on the Curriculum of Annexure I to Annexure VI they choose to study. Details are given in the table below.

Exit after	Awards
2nd Semester	ANNEXURE I: UG Certificate in Computer Science
	ANNEXURE II: UG Certificate in Data Visualization
	ANNEXURE III: UG Certificate in Data Science
	ANNEXURE IV: UG Certificate in Cyber Security Fundamentals
	ANNEXURE V: UG Certificate in Information Technology
	ANNEXURE VI: Certificate in Multimedia Applications
4th Semester	ANNEXURE I: UG Diploma in Computer Science
	ANNEXURE II: UG Diploma in Artificial Intelligence & Machine Learning
	ANNEXURE III: UG Diploma in Data Science
	ANNEXURE IV: UG Diploma in Cyber and Digital Sciences
	ANNEXURE V: UG Diploma in Information Technology
	ANNEXURE VI: UG Diploma in Computer Applications
6th Semester	ANNEXURE I: B.Sc. Computer Science - Specialization in Core Computer Science
	ANNEXURE II: B.Sc. Computer Science - Specialization in Artificial Intelligence & Machine Learning
	ANNEXURE III: B.Sc. Computer Science - Specialization in Data Science
	ANNEXURE IV: B.Sc. Computer Science - Specialization in Cyber and Digital Sciences
	ANNEXURE V: B.Sc. Computer Science - Specialization in Information Technology
	ANNEXURE VI: B.Sc. Computer Science - Specialization in Computer Applications

5. PEDAGOGICAL APPROACHES

COURSE TYPES	APPROACH
a) Lecture Courses	Regular classroom lectures by qualified / experienced Expert Teachers • These Lectures may also include classroom discussion, demonstrations, case analysis • Use of Models, Audio-Visual contents, Documentaries, PPTs may supplement.
b) Tutorial Courses	Problem solving Exercise classes guided discussion, supplementary readings vocational training, etc.
c) Practical / Lab work	Practical Lab activity with Theoretical support Mini projects, Activity based engagement, Program executions, Data processing and presentation exercise.
d) Seminar Course	A course requiring student to design and participate in discussions, Group Discussions, Elocution and Debate, Oral Communication Paper presentations, Poster Presentation, Role play participation, Quiz competitions, Business plan preparation/presentation, etc.
e) Internship course	Courses requiring students to *Learn by Doing* in the workplace external to the educational Institutions. Internships involve working in Software Companies, Research and Higher Educational Institution Laboratories, Corporate Offices, etc. All Internships should be properly guided and inducted for focused learning.
f) Research Project	Students need to study and analyze the recent research publications from indexed/peer reviewed journals in their area of specialization. Outcome of the study and analysis need to be presented as a thesis or research report with necessary experimental results.

6. ACADEMIC AUDIT OF COURSES

Internal Quality Assurance Cell (IQAC) at every institution is expected to supervise the implementation of NEP Regulations in these programmes. Availability of required number of Classrooms, Faculty rooms, Labs, Library facilities, Computer Centre and recruitment of Faculty members, allocation of funds for running the Science Labs/Computer Centre etc., is the responsibility of University / College Administration.

7. ADMISSIONS & LATERAL ENTRY

7.1 Admissions Eligibility

The candidates for admission to this programme shall be required to have passed with a minimum of 50% of marks in 10+2 / 10+3 system of examinations or equivalent with mathematics / business mathematics / equivalent as one of the subjects of study.

Students shall be admitted to this programme based on merit in an All-India Admission Test like CUET or any other Competitive Examinations conducted for this purpose by competent authorities or any other admissions criteria fixed by the University from time to time.

7.2 Lateral Entry

As per NEP, students have a choice of exit and entry into the programme multiple number of times. UGC specifies that about 10% of seats over and above the sanctioned strength shall be allocated to accommodate the Lateral Entry students.

Candidates seeking entry at the second, third and fourth year, should meet the necessary eligibility criteria with respect to the certificate / diploma / degree they possess, with necessary minimum credits banked in the Academic Bank of Credits (ABC). Such students who get admitted in later years, other than first year will be guided by the following clauses:

- that the University shall notify the admission process and number of vacancies open for lateral entry.
- that the Lateral entrants shall be admitted only after such transparent screening process and such procedure that the University may prescribe from time to time. University may prescribe different methods of screening for different programmes depending on the circumstances prevailing in each case.
- Lateral entry shall be permissible only in the beginning of years 2, 3, 4 of the Under Graduate / Honors programme; provided that the students seeking lateral entry shall have obtained the minimum pass marks / grades fixed by the University in their previous academic years.

8. EVALUATION (INTERNAL & END SEMESTER ASSESSMENT) AND GRADES

All Credit courses are evaluated for 100 marks. Internal Assessment component is for 25 marks and the End Semester University exam is for 75 marks for theory courses. In case of practical courses, research project work etc., Internal Assessment component is for 50 marks and the End Semester University exam is for 50 marks.

Internal Test Scheme: Principal of the College schedules the Mid-Semester Exam for all courses during 8/9th week of start of classes. Mid-Semester exam for 90 minutes' duration need to be conducted for all these theory courses. The evaluated marks need to be uploaded to Controller of Examinations of University. The answer books of Mid-Semester exams need to be preserved until the declaration of results by the University.

8.1 INTERNAL ASSESSMENTS (for Courses up to 6th Semester)

8.1.1 Internal Assessment Marks for Theory subjects

Total Internal Assessment mark for a theory subject is 25 marks. The breakup is as follows:

Evaluation Component	Marks
A. Mid Semester Exam (one)	20
B. Percentage of Attendance	05
Total	**25**

8.1.2 Internal Assessment marks for Practical / Internships subjects

Faculty member in-charge of Lab practical shall evaluate the practical subjects for 50 marks. The breakup is as follows:

Evaluation Component	Marks
A. Mid-Semester Practical Exam (one) / Viva-voce	20
B. Practical Record / Internship Report	25
C. Percentage of Attendance	05
Total	**50**

8.1.3 Internal Assessment marks for Research Project Work

There shall be a faculty member assigned as a Project Guide for each candidate doing the Research Project. Progress of the candidate can be assessed once in a month in a project review meeting. Three project review meetings shall be conducted for Internal Assessment.

Project review committee may be constituted and the committee shall organize project review meetings and evaluate the progress and to award the Internal Assessment marks. Internal Assessment component for the Research Project is 50 Marks. The breakup is as follows:

Evaluation Component	Marks
A. Monthly Review (3 Reviews – 10 Marks each)	30
B. Project Report	10
C. Project Presentation and viva-voce	10
Total	**50**

8.1.4 Internal Assessment marks for Theory Subjects with Practical Components

Faculty member in-charge of Theory Subjects with Practical Component shall evaluate the candidates both for their performance in theory and practical. Internal Assessment marks for Theory Subjects with Practical Components is 25 marks. The breakup is as follows:

Evaluation Component	Marks
A. Mid Semester Exam (one)	15
B. Observation Note / Practical Record	05
C. Percentage of Attendance	05
Total	**25**

8.1.5 Marks for Attendance is as follows

Attendance %	Marks
Below 75%	0
75% - 80%	1
80% - 85%	2
85% - 90%	3
90% - 95%	4
95% - 100%	5

8.2 END SEMESTER ASSESSMENTS (for Courses upto 6th Semester)

Controller of Examinations (COE) of Pondicherry University schedules the End-Semester exams for all theory and practical subjects based on university calendar. For Theory courses with Practical components, End semester exams shall be conducted separately for Theory and Practical.

A detailed Exam Time Table shall be circulated at least 15 days before the start of exams, mostly during 15/16th week of the Semester. Question Papers shall be set externally based on BoS approved syllabus. All students who have a minimum of 70% attendance are eligible to attend the end-semester exams. Attendance percentage shall be calculated for each course to decide the eligibility of the candidate for writing the end-semester examination.

8.2.1 Breakup of End Semester Marks
(All End Semester Exams shall be conducted by the Pondicherry University)

The question paper shall be set as per the Bloom's Taxonomy. Various levels along with it's description and sample questions are as follows:

Knowledge: Recall or remember previously learned information.
Example: List the basic data types in Python

Comprehension: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating the main ideas.
Example: Explain how a stack data structure works.

Application: Apply knowledge and concepts to solve problems in new situations. Use learned information in a different context.

Example: Write a Python program to solve the deadlock problem.

Analysis: Break down information into parts and examine the relationships between the parts. Identify motives or causes.

Example: Analyse the efficiency of two sorting algorithms and compare their advantages and disadvantages.

Synthesis: Create a new whole by combining elements in novel ways. Use creativity to produce something original.

Example: Design a web application that can generate a time table of a school.

Distribution of questions at various levels are as indicated.

Course Components	Max. Marks	End-Sem Exam Duration
A. Theory subjects: Sec A: 10 Questions of 2 Marks each (20 Marks) *(Knowledge: 3, Comprehension: 2, Application: 3, Analysis:2)* Sec B: 5 out of 7 Questions of 5 Marks each (25 Marks) *(Knowledge: 1, Comprehension: 2, Application: 1, Analysis:3)* Sec C: 2 Either/OR choice questions of 15 Marks each (30 Marks) *(Application: 1, Analysis:1)* **Questions from all units of Syllabus equally distributed.**	75 Marks	3 Hours
B. Skill Enhancement/ Practical/Internship/Project Work subjects: **Skill Enhancement / Practical Subjects:** Based on Practical Exams conducted by CoE of University **Internship / Research Project Work:** Presentation of the work / Report / Viva-voce examinations	50 Marks	3 Hours --
C. Theory Subjects with Practical Components: **i. Theory Component:** Sec A: 5 Questions of 2 Marks each (10 Marks) *(Knowledge: 3, Comprehension: 2, Application: 3, Analysis:2)* Sec B: 5 out of 7 Questions of 4 Marks each (20 Marks) *(Comprehension: 2, Application: 3, Analysis:2)* Sec C: 2 Either or type questions of 10 Marks each (20 Marks) *(Analysis / Synthesis)* **Questions from all units of Syllabus equally distributed.**	50 Marks	3 Hours

	25 Marks	3 Hours
ii. Practical Component: Based on Practical Exams / Presentation / Viva-voce with external examiner appointed by the University Controller of Examinations, and schedules exclusively prepared for such practical examinations by the University Examination Section. **The examination shall be conducted for 50 Marks and reduced to 25 Marks.** **Total Marks: 75 (Theory: 50 Marks + Practical: 25 Marks)**		

8.3 CONSOLIDATION OF MARKS AND PASSING MINIMUM

Controller of Examinations of the University consolidates the Internal Assessment marks uploaded by the Colleges and marks secured by students in End-Semester examinations. The total marks will be converted into letter grades. The passing minimum is 40% marks (Internal Assessment + End Semester Assessment put together) and students who secure between 40% and 49% will be awarded 'P' (Pass Grade).

8.3.1 Arrear Exam

A student who secures less than 40% marks in aggregate is declared as *Fail* and that student is eligible to take up supplementary examination by registering to the failed course in the following Semester. All other candidates who failed due to shortage of attendance and those who are seeking to improve the grade shall repeat the course.

8.3.2 Letter Grades and Calculation of CGPA

Total marks secured by a student in each subject shall be converted into a letter grade. UGC Framework has suggested a Country wide uniform letter grades for all UG courses. The following table shows the seven letter grades and corresponding meaning and the grade points for calculation of CGPA.

Equivalent Letter Grade	Meaning	Grade Points for Calculation of CGPA
O	Outstanding	10
A+	Excellent	9
A	Very Good	8
B+	Good	7
B	Above Average	6
C	Average	5
P	Pass	4
F	Fail	0
Ab	Absent	0

In order to work out the above letter grades, the marks secured by a student (Total of Internal Assessment and End Semester Assessment) would be categorized for relative grading.

The range of marks for each grade would be worked as follows:

- Highest marks in the given subject: X
- Cut of marks for grading purpose: 50 marks
- Passing minimum: 40
- Number of grades (except P - Pass) (O, A+, A, B+, B, C): G = 6
- Range of marks: K = (X - 50) / G

(i) If K ≥ 5, then the grades shall be awarded as given in the following table.

Range of Marks in %	Letter Grade Points for	Grade Points for
X to (X-K) + 1	O	10
(X-K) to (X-2K) + 1	A+	9
(X-2K) to (X-3K) + 1	A	8
(X-3K) to (X-4K) + 1	B+	7
(X-4K) to (X-5K) + 1	B	6
(X-5K) to 50	C	5
40 – 49	P	4
Below 40	F	0
Absent (Lack of Attendance)	Ab	0

(ii) If K< 5, then the grades shall be awarded as given in the following table.

Range of Marks in %	Letter Grade Points for	Grade Points for
80-100	O	10
71-79	A+	9
66-70	A	8
61-65	B+	7
56-60	B	6
50-55	C	5
40-49	P	4
Below 40	F	0
Absent (lack of attendance)	Ab	0

8.3.3 Calculation of Semester Grade Point Average and Cumulative Grade Point Average

Semester Grade Point Average (SGPA) is calculated by taking a weighted average of all grade points secured by a candidate from all subjects registered by him/her in the given Semester. The weights being the number of credits that each subject carries.

Cumulative Grade Point Average (CGPA) shall be calculated as the weighted average of credits that course carries and the value of Grade points averaged for all subjects.

8.3.4 Computation of SGPA and CGPA

The following procedure shall be followed to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

The SGPA is the ratio of the 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 to the sum of the number of credits of all the courses undergone by a student, i.e. $\text{SGPA } (S_i) = \Sigma(C_i \times G_i) / \Sigma C_i$

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.

(i) Example for Computation of SGPA where candidate has not failed in any course

Semester	Course	Credit	Letter Grade	Grade point	Credit Point (Credit x Grade)
I	Course 1	3	A	8	3 X 8 = 24
I	Course 2	4	B+	7	4 X 7 = 28
I	Course 3	3	B	6	3 X 6 = 18
I	Course 4	3	O	10	3 X 10 = 30
I	Course 5	3	C	5	3 X 5 = 15
I	Course 6	4	B	6	4 X 6 = 24
		20			139
				SGPA	**139/20=6.95**

(ii) Example for Computation of SGPA where candidate has failed in one course

Semester	Course	Credit	Letter Grade	Grade point	Credit Point (Credit x Grade)
I	Course 1	3	A	8	3 X 8 = 24
I	Course 2	4	B+	7	4 X 7 = 28
I	Course 3	3	B	6	3 X 6 = 18
I	Course 4	3	O	10	3 X 10 = 30
I	Course 5	3	C	5	3 X 5 = 15
I	Course 6	4	F	0	4 X 0 = 00
		20			115
				SGPA	**115/20=5.75**

(iii) Example for Computation of SGPA where candidate has failed in two courses

Semester	Course	Credit	Letter Grade	Grade point	Credit Point (Credit x Grade)
I	Course 1	3	A	8	3 X 8 = 24
I	Course 2	4	B+	7	4 X 7 = 28
I	Course 3	3	F	0	3 X 0 = 00
I	Course 4	3	B	6	3 X 6 = 18
I	Course 5	3	C	5	3 X 5 = 15
I	Course 6	4	F	0	4 X 0 = 00
		20			85
				SGPA	**85/20=4.25**

The CGPA shall also be calculated in similar way as shown in examples (i), (ii) and (iii) of SGPA for all subjects taken by the students in all the semesters. However, if any student fails more than once in the same subject, then while calculating CGPA, the credit and grade point related to the subject in which the student fails in multiple attempts will be restricted to one time only. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

In case of audit courses offered, the students may be given (P) or (F) grade without any credits. This may be indicated in the mark sheet. Audit courses will not be considered towards the calculation of CGPA.

8.3.5 Declaration of Results

Controller of Examinations (COE) of the University shall declare the results of given UG programme following the CGPA secured by students by the end of 6th Semester and 8th Semester.

8.3.6 Classification of Divisions

Range of CGPA	Result
9.0 – 10	First Class with distinction[#]
6.0 - 8.99	First Class
5.0 - 5.99	Second Class
4.0 - 4.99	Pass

Distinction will be awarded ONLY to those candidates who have cleared ALL subjects in the first attempt.

8.4 INTERNAL ASSESSMENT / END-SEMESTER ASSESSMENT / PASSING MINIMUM / GRADES (FOR 7TH & 8TH SEMESTERS)

Regulations to be notified in the next revision after the confirmation from University NEP committee.

9. MINIMUM CREDIT REQUIREMENTS– University Department

S.No.	Component	3-year UG			4-year UG (Honors / Honors With research)		
		Credits	Courses	Cr/Course	Credits	Courses	Cr/Course
1	Major Disciplinary/ Interdisciplinary Courses	56	14	4	76	19	4
2	Minor Disciplinary/ Interdisciplinary Courses	24	6	4	32	8	4
3	Multi-Disciplinary Courses	9	3	3	9	3	3
4	Ability Enhancement Courses	12	4	3	12	4	3
5	Skill Enhancement Courses	9	3	3	9	3	3
6	Value-added courses	8	4	2	8	4	2
7	Summer Internship (MJD 11)	4	1	4	4	1	4
8	Community Engagement and Service	2	1	2	2	1	2
9	Research Project/Dissertation	--	--	--	12	Project or 3 Courses##	
	Total	**124**			**164**		

##Note: Honors students not undertaking research will do 3 courses for 12 credits in lieu of a research project / Dissertation.

- MJD: Major Disciplinary (Compulsory – Hardcore Subjects)
- MID: Minor Disciplinary (Specialization Specific – Softcore Subjects)
- MLD: Multi-Disciplinary
- AEC: Ability Enhancement Courses
- SEC: Skill Enhancement Courses
- VAC: Value Added Courses
- SG: Specialization Group
- Course Code: CS1MJ01(E) (CS-B.Sc. Computer Science, 1-Semester, MJ-Component, 01-Course Number in the respective component)

10. CURRICULAM & SYLLABUS

ANNEXURE I – SPECIALIZATION IN CORE COMPUTER SCIENCE
ANNEXURE II – SPECIALIZATION IN AI & ML
ANNEXURE III – SPECIALIZATION IN DATA SCIENCE
ANNEXURE IV – SPECIALIZATION IN CYBER AND DIGITAL SCIENCES
ANNEXURE V – SPECIALIZATION IN INFORMATION TECHNOLOGY
ANNEXURE VI – SPECIALIZATION IN COMPUTER APPLICATIONS