made available on the Institute website.

10. EVALUATION PROCEDURE

Refer Annexure – I, for Assessment and Evaluation procedure adopted in URR24 curriculum

11. MINIMUM REQUIREMENT FOR PASSING A COURSE

Refer Annexure – I, for minimum requirement to pass a course under Assessment and Evaluation procedure adopted in URR24 curriculum

12. GRADING SYSTEM

12.1 At the end of the semester a student is awarded a letter grade in each of his / her courses considering the total marks secured (X) in that course where, X = Marks secured in CIE + ESE.

12.2 For arriving at a grade obtained by a student in a particular course, the total marks obtained by the student in CIE+ESE for theory or lab integrated course shall be converted to a letter grade following the guidelines in Table.

12.3 The Institute shall follow an absolute grading system. The grades will be awarded to each course as below:

Grade	Total Marks Secured (X)
S	X ≥ 90 %
A	80% ≤ X < 90%
B	70 %≤ X < 80%
C	60 %≤ X < 70%
D	50% ≤ X < 60%
P	40% ≤ X<50%
F	X<40%

12.4 The typical grades and their numerical equivalents on 10-point scale (called Grade Points) are as follows:

Performance	Letter Grade	Grade Points (G_i)
Superior	S	10
Excellent	A	9
Very Good	B	8
Good	C	7
Average	D	6
Pass	P	4
Fail	F	0

12.5 **F-Grade** is a Fail Grade. The course in which the student has earned F-Grade will be termed as a backlog course.

12.6 In addition, there shall be a transitional **M-Grade.** M-Grade for "Debarred" due to indiscipline / malpractice during examination.

12.7 A Semester Grade Point Average (SGPA) will be computed for each semester. The SGPA will be calculated as follows:

$$\text{SGPA} = \sum_{i=1}^{n} C_i G_i \Big/ \sum_{i=1}^{n} C_i$$

where 'n' is the no. of courses (subjects) offered (excluding mandatory non-credit courses) for the semester, 'C_i' is the credits allotted to a particular course, 'G_i' is the grade-points carried by the letter corresponding to the grade awarded to the student for the course as illustrated in 12.4.

12.8 The SGPA would indicate the performance of the student in the semester to which it refers. SGPA will be rounded off to the second place of decimal and recorded as such.

12.9 Starting from the second semester, at the end of each semester, a Cumulative Grade Point Average (CGPA) will be computed for every student as follows:

$$\text{CGPA} = \sum_{i=1}^{m} C_i G_i \Big/ \sum_{i=1}^{m} C_i$$

where 'm' is the total number of courses (subjects) the student has been offered from the first semester onwards up to and including the present semester, 'C_i 'and 'G_i' are as explained in 12.7.

12.10 The CGPA would indicate the cumulative performance of the student from the first semester up to the end of the semester to which it refers. CGPA will be rounded off to the second place of decimal and recorded as such.

12.11 SGPA and CGPA are calculated in consideration of only credits cleared, i.e. F-Grade credits are not included for calculation.

13. SUPPLEMENTARY EXAMINATIONS

13.1 A student who obtained the F-Grade in a course (theory or practical) can appear in a subsequent End Semester Examination (ESE) in the same course as a supplementary candidate.

13.2 However, the marks secured in Continuous Internal Evaluation (CIE) by

17.4 a) **CGPA to Percentage conversion**: As per UGC and AICTE guidelines, the CGPA will be converted to percentage of marks as below:

Percentage of marks = (CGPA – 0. 50) x 10

Ex: If CGPA is 6.75, the equivalent Percentage of marks = (6.75-0.50) x 10 = 62.5%

b) CGPA to Class conversion:

S. No.	Division	Eligibility Criteria
1	First Division with Distinction	a) Student should secure CGPA≥7.50 b) Student should pass all the courses along with the batch of students admitted with him / her within 8 consecutive semesters (6 consecutive semesters for lateral entry students) c) Student who appeared for improvement examination up to 6th semester will also be considered d) Student who has cleared any course in supplementary examination shall not be awarded Distinction
2	First Division	a) Student should secure CGPA, which is 6.50 ≤ CGPA < 7.50 within the time frame of the programme i.e. 16 semesters (12 semesters in case of lateral entry students) b) Student who has cleared any course in supplementary examination and secured CGPA≥6.50
3	Second Division	Student should secure CGPA, which is 5.50 ≤ CGPA < 6.50 within the time frame of the programme i.e. 16 semesters (12 semesters in case of lateral entry students)
4.	Pass Division	Student should secure CGPA, which is 4.50 ≤ CGPA < 5.50 within the time frame of the programme i.e. 16 semesters (12 semesters in case of lateral entry students)
5.	Fail	Student with a CGPA < 4.50 will not be eligible for award of degree

17.5 **Minor / Honours / Honours with Research in Engineering can be conferred as per AICTE guidelines and Model curriculum January 2024**

A student will be conferred with Undergraduate degree as "*Bachelor of Technology in XXX Engineering/Technology, with Honours / Honours with*

1. Introduction

Assessment & Evaluation (A&E), Grading and Certification rest on examination system which plays an important role in the progression of a learner on the learning path. The exams not only indicate whether the desired learning outcomes have been achieved but also assess the level of achievements against benchmarks.

Assessment & Evaluation (A&E) of students is a critical aspect of Outcome Based Education (OBE) that emphasizes continuous assessment, evaluation and feedback throughout the learning process. It allows the faculty to identify each student's strengths and weaknesses on an ongoing basis. This enables personalized instruction to be tailored to meet individual learning needs, ensuring that each student can progress at their own pace. Regular competency-focused assessments encourage students to reflect on their own learning and performance. Self-assessment skills are essential for lifelong learning, helping students develop the ability to evaluate their own work and make informed decisions about their learning strategies.

For holistic learning, there is a need to assess and evaluate both generic and technical competencies acquired by a graduate. The A&E in URR-24 assesses & evaluates both technical and generic competencies through formative and summative assessments.

Under URR-24 for Competency Focused Outcome Based Education (CF-OBE),

- A theory course shall be evaluated for a maximum of 250 marks
- A lab integrated course shall be evaluated for a maximum of 350 marks.

2. Components in A&E of CF-OBE

Under URR-24, the **Competency Focused Outcome Based Assessment & Evaluation (CF-OB-A&E)** of a student comprises of the following three components:

1. Generic Competency Building Activity Assessment (Formative assessment) – GCBAA
2. Mid Term Technical Competency Assessment (Formative assessment) – MTTCA assessment
3. End Semester Technical Competency assessment (Summative assessment) -ESTCA

For a theory course, the above three components shall be grouped into two classes as mentioned below.

1. Continuous Internal Evaluation (CIE) – 150 marks which includes GCBAA and MTTCA:
    - MTTCA shall be for 100 marks
    - GCBAA shall be for a maximum of 50 marks
2. End Semester Examination (ESE):
    - ESE shall be for 100 marks which includes ESTCA

For a lab integrated course, in addition to the above-mentioned components for the theory part, the following shall be used for evaluation of laboratory part.

1. Lab Continuous Internal Evaluation (CIE) – 60 marks
    - Performance based assessment for a maximum of 40 marks (average of marks awarded for each laboratory session performance)
    - Attendance for a maximum of 20 marks
2. Lab End Semester Examination (ESE):
    - ESE shall be for 40 marks

Table 1a shows the different components of A & E of the student for a theory course, which shall be evaluated for a maximum of 250 marks. Table 1b shows the components of A & E for a lab integrated course which shall be evaluated for a maximum of 350 marks.

Table 1a. Components of Assessment & Evaluation (A & E) for theory course

A & E Component			COs addressed	Max. marks	Weightage%	Max. Duration of exam
CIE (60%)	Generic Competency Building Activity Assessment (GCBAA)		CO1 – CO4	50	20%	-
	Mid Term Technical Competency Assessment (MTTCA)	Minor Exam -I	CO1	25	10%	45 mins
		MSE	CO1 & CO2	50	20%	90 mins ($1\ ^1/_2\ Hrs$)
		Minor Exam-II	CO3	25	10%	45 mins
ESE (40%)	End Semester Technical Competency Assessment (ESTCA)	ESE	CO1 – CO4	100	40%	180 mins (3 Hrs)
Total Marks				**250**	**100%**	-

Table 1b. Components of Assessment & Evaluation (A & E) for lab integrated course

A & E Component				COs addressed	Max. marks	Weightage %	Max. Duration of exam
Theory Part	**CIE (60%)**	Generic Competency Building Activity Assessment (GCBAA)		CO1 – CO4	50	20%	-
		Mid Term Technical Competency Assessment (MTTCA)	Minor Exam - I	CO1	25	10%	45 mins
			MSE	CO1 & CO2	50	20%	90 mins ($1\ ^1/_2\ Hrs$)
			Minor Exam- II	CO3	25	10%	45 mins
	ESE (40%)	End Semester Technical Competency Assessment (ESTCA)	ESE	CO1 – CO4	100	40%	180 mins (3 Hrs)
	Total Marks -Theory				**250**	**100%**	-
Laboratory part	**CIE (60%)**	Performance Based Assessment		CO5 - CO8	40	40%	-
		Attendance		-	20	20%	-
	ESE (40%)	End Semester Technical Competency Assessment (ESTCA)	ESE	CO1-CO8	40	40%	180 mins (3 Hrs)
	Total Marks -Laboratory				**100**	**100%**	-
Total marks					**350**	**-**	-

The pattern of Teacher's Assessment of different components has been attached herewith in subsequent sections.

(vi). **Coding Assignments (Max: 20 marks):** Submission of Coding Assignments

(vii). **Course Projects (Max: 50 marks):** Complete any of the Course Projects and present/demonstrate them to the course faculty.

The division of marks under GCBAA is shown below in Table 2.

Table 2. Division of marks under Generic Competency Building Activity Assessment (GCBAA)

S.No.	Component	Generic competency to be assessed	Max. marks	Targeted POs
1.	Single Source Notebook & Attendance	Punctuality, Time Management & Responsibility	20	PO7, PO11
2.	Maintaining a record of solutions of tutorials in SSN	Problem Solving & Organizational skills	20	PO11
3.	Solving tutorial problems on board	Public speaking skills, Analytical Thinking & Collaboration	20	PO8, PO9
4.	Submitting Special Assignments (CPs, CRPs)	Reading comprehension, Paraphrasing & Writing skills	20	PO9
5.	Presentations on Special topics (STs) and Special Assignments (SAs)	Public speaking skills, Creativity & Organizational skills	20	PO8, PO9
6.	Coding Assignments	Programming skills, Logical Thinking & Problem solving	20	PO7, PO8, PO11
7.	Course Projects	Project management, Critical thinking, Creativity & Innovation	50	PO1 – PO11
	Total marks		**50 max.**	

i. <u>Single Source Notebook (SSN) & Attendance</u>

Focused skills: Punctuality, Time Management & Responsibility

Sample evaluation patterns for A&E are presented below.

Example -1: Student bearing Roll number B24XX001 has exhibited the generic competencies (i), (ii) & (iv) as below:

(i) Maintained SSN & an attendance of 78% in the course. Awarded 16 marks (15.6 rounded to 16) out of 20.

(ii) Maintained a neat record of solutions of all problems of only 8 tutorial sheets out of 12 in SSN. Awarded 14 marks (20*8/12=13.33=rounded to 14) out of 20

(iv) Submitted a report on special assignments – one report on CP and one report on CRP. Scored 8 out of 10 in CP and scored 7 out of 10 in CRP

Example -2: Student bearing Roll number B24XX002 has exhibited the generic competencies (i), (ii), (iv) & (vi) as below:

(i) Maintained SSN & an attendance of 92%. Awarded 19 (18.4 marks rounded to 19) out of 20 marks.

(ii) Maintained a neat record of solutions of all problems of 12 tutorial sheets in SSN and awarded 20 out of 20 marks

(iv) Submitted a report on special assignments – one on CP and one on CRP. Scored 10 out of 10 marks in each of them

(vi) Solved problems in both coding assignments. Awarded 16 out of 20 marks.

Example -3: Student bearing Roll number B24XX003 has exhibited the generic competencies (i) & (vii) as below:

(i) Maintained SSN & 60% attendance in the course. Awarded 12 out of 20 marks.

(vii) Completed Course Project. Awarded 40 marks out of 50.

Example -4: Student bearing Roll number B24XX004 has exhibited the generic competencies (i), (ii) & (v) as below:

(i) Maintained SSN & an attendance of 84% in the course. Awarded 17 marks (16.8 rounded to 17) out of 20.

(ii) Maintained a record of solutions of all problems of 12 tutorial sheets out of 12 in SSN. Awarded 20 out of 20 marks

(v) Presented special Topic "Biomedical Signals" in the class. Awarded 16 out of 20 marks

7. CIE & ESE FOR LABORATORY COMPONENT IN LAB INTEGRATED COURSES

For laboratory part in lab integrated courses

(I) Continuous Internal Evaluation (CIE):

1. Every student shall complete a minimum of 10 laboratory experiments to be allowed to take ESE laboratory exam.
2. If the student misses any regular sessions of laboratory, he/she should complete the experiment in make-up laboratory sessions.
3. CIE of laboratory has two components

i. Performance based assessment:

(a) The performance of student in each laboratory session (including Remedial laboratory sessions/ Makeup laboratory sessions) will be evaluated for a maximum of 40 marks.

(b) The average of performances of the students in a minimum of 10 laboratory sessions shall be awarded against a maximum of 40 marks.

(c) E.g. The performance of a student in ten sessions has been shown in Table 11 with the final assessment marks.

$$Average\ marks = \frac{E_1 + E_2 + E_3 + E_4 + E_5 + E_6 + E_7 + E_8 + E_9 + E_{10}}{10}$$

ii. Attendance:

(a) Student shall attend all regular laboratory sessions as per schedule. His/her attendance % shall be considered for awarding a maximum of 20 marks in CIE.

(b) The attendance for regular classes shall only be counted. Attendance of Make-up laboratories will not be counted for awarding marks for attendance.

$$Marks\ for\ attendance = 20 * \frac{Number\ of\ regular\ laboratory\ sessions\ attended}{Number\ of\ regular\ laboratory\ sessions\ conducted}$$

(II) End Semester Examination (ESE):

(i) Course Teacher shall conduct an exam on any of the 10 experiments performed by the student in the laboratory course.

(ii) His/her performance can be evaluated for a maximum of 40 marks.

(iii) As a case study, the evaluated performance of a student in ESE is presented as shown in table 12. The course teachers are free to follow their own rubrics for assessing the student in ESE.

*Table 11. Sample **evaluation of CIE** in laboratory-based course*

Sl. No.	Roll number	Performance based assessment											Marks for attendance			
		E1 (40)	E2 (40)	E3 (40)	E4 (40)	E5 (40)	E6 (40)	E7 (40)	E8 (40)	E9 (40)	E10 (40)	Average (40)	Regular sessions attended	Regular sessions held	Marks awarded (20)	Final marks (60)
1.	B24XX001	34	35	20	36	34	32	28	31	35	36	33	9	12	15	**33+15 =48**
2.	B24XX002	26	28	31	32	29	27	20	18	26	34	28	**12**	**12**	**20**	**28+20 =48**

*Table 12. Sample **evaluation of ESE** in laboratory-based course*

Sl. No.	Roll number	Writeup (10)	Performing the experiment (10)	Results (10)	Comprehensive Viva-voce (10)	Total (40)
1.	B24XX001	9	9	9	6	33
2.	B24XX002	5	5	5	2	17

8. MINIMUM REQUIREMENT FOR PASSING A COURSE

A. Theory Course:

A student is deemed to have passed in a theory course (without laboratory), if he / she secures

a) 40% of marks assigned to End Semester Examination (ESE) of theory course (Minimum of 40 marks out of 100 marks in ESE)

and

b) 40% of marks assigned to ESE and CIE taken together (Minimum of 100 marks out of 250 marks of the course)

B. Lab Integrated Course:

A student is deemed to have passed in lab integrated course, if he / she secures

a) 40% of marks assigned to End Semester Examination (ESE) of theory course (Minimum of 40 marks out of 100 marks in ESE)

and

b) 40% of marks assigned to ESE and CIE of theory and laboratory taken together (Minimum of 140 marks out of 350 marks of the course)

The samples of components of final A&E for awarding Pass/Fail are shown in Table 13.

Table 13a. Sample final scores of students in theory course (without laboratory)

S.No.	Roll Number	CIE (150)				ESE (100)	Total marks (250)	% of marks	Pass/ Fail	Remarks, if fail
		GCBAA (50)	MINOR EXAM-I (25)	MSE (50)	MINOR EXAM-II (25)					
1.	B24XX001	40	15	20	10	**60**	**145**	58%	Pass	Attained min 40% i.e. 40 marks out of 100 in ESE & Attained min. 40% i.e., 100 marks out of 250 in CIE+ESE
2.	B24XX002	50	20	40	22	**85**	**217**	86.8%	Pass	Attained min 40% i.e. 40 marks out of 100 in ESE & Attained min. 40% i.e., 100 marks out of 250 in CIE+ESE
3.	B24XX003	50	10	10	10	**30**	**110**	44%	Fail	Not attained minimum 40% i.e., 40 marks out of 100 in ESE
4.	B24XX004	40	5	0	0	**50**	**95**	38%	Fail	Not attained minimum 40% i.e., 100 marks out of 250 marks in CIE+ESE

Table 13b. Sample final scores of students in lab integrated course

S.No.	Roll Number	CIE (150)				CIE LAB (60)	ESE LAB (40)	ESE theory (100)	Total marks (350)	% of marks	Pass/ Fail	Remarks, if fail
		GCBAA (50)	MINOR EXAM-I (25)	MSE (50)	MINOR EXAM-II (25)							
1.	B24XX001	40	20	40	15	50	30	**75**	**270**	77.1%	Pass	Attained min 40% i.e. 40 marks out of 100 in ESE & Attained min. 40% i.e., 140 marks out of 350 in CIE+ESE
2.	B24XX002	45	10	10	10	26	10	**52**	**163**	46.5%	Pass	Attained min 40% i.e. 40 marks out of 100 in ESE & Attained min. 40% i.e., 140 marks out of 350 in CIE+ESE
3.	B24XX003	40	10	15	5	35	20	**21**	**146**	41.7%	Fail	Not attained minimum 40% i.e., 40 marks out of 100 in ESE theory
4.	B24XX004	40	AB	AB	AB	20	10	**60**	**130**	37.1%	Fail	Not attained minimum 40% i.e., 140 marks out of 350 marks in CIE+ESE

9. GRADING SYSTEM

1. At the end of the semester a student, if passed in a course, shall be awarded a letter grade in that course considering the total marks secured in that course.
2. For arriving at a grade obtained by a student in a particular course, the total marks obtained by the student in CIE+ESE for theory or lab integrated course shall be converted to a letter grade following the guidelines in Table 14.
3. X represents the % of max marks secured, and is calculated using the formula:

$$X = \frac{Total\ marks\ secured\ in\ the\ course\ (if\ passed)}{Maximum\ marks\ of\ the\ course} * 100$$

Table 14. Grades to be allotted

Grade	*Total % of max marks secured*
S	X ≥ 90 %
A	80% ≤ X < 90%
B	70 %≤ X < 80%
C	60 %≤ X < 70%
D	50% ≤ X < 60%
P	40% ≤ *X<50%*
F	*X<40%*

Table 15. Example of grades allotted for courses for a student

Name of the course	**Course Type**	**Max. marks for the course**	**Marks secured**	**Total % of max marks secured**	**Grade**
Communication Engineering	Theory	250	150	60%	C
Analog Electronics	Lab Integrated	350	264	75.4%	B
Signals & Systems	Lab integrated	350	302	86.2%	A
PSD Lab	Lab	100	94	94%	S
SEA-1	VAC	100	81	81%	A