

**CRITERIA 8**  
**FIRST YEAR ACADEMICS**

Name of the faculty member	PAN NO	Qualification	Date of Receiving Highest Degree	Area of Specialization	Designation	Date of Joining	Teaching load (%)			Currently Associated (Yes / No)	Nature Of Association (Regular / Contract)	Date Of leaving (In case Currently Associated is 'No')
							CAY	CAY m1	CAY m2			
							2024-25	2023-24	2022-23			
							I Civil	I Civil	I Civil			
Mrs.G Ranjitha	CCCPG5441B	B.A.,M.A.,M. Phil.,	22.06.2016	English	Assistant Professor	26.04.2024	33.33%			Yes	Regular	
Dr.N Nagamani	BEBPN1416F	M.Sc.,M.Phil.,Ph.D	31.03.2022	Mathematics	Assistant Professor	05.09.2024	50.00%			Yes	Regular	
Dr.K.Jeyapappa	ASPPJ3299R	M.Sc.,M.Phil.,Ph.D	21.08.2019	Physics	Associate Professor	04.11.2020	33.33%	45.45%	45.45%	Yes	Regular	
Ms.M Preethi Ram	EAEP2510N	M.E	05.07.2023	CSBS	Assistant Professor	03.07.2024	42.86%			Yes	Regular	
Dr. M. Venkatesh Perumal	ASRPV9671M	M.Sc.,M. Phil., Ph.D.,	03.12.2012	Chemistry	Associate Professor	01.06.2016	37.50%	37.50%	50.00%	Yes	Regular	
Dr.S.Erana Veerappa Dinesh	AAXPF0108R	Ph.D.,	21.09.2021	CSBS	Associate Professor	28.07.2022	25.00%			Yes	Regular	
Dr.S.Gomathi	BFLPG4155F	M.A. M.Phil., Ph.D	03.04.2017	English	Assistant Professor	28.07.2022		50.00%	40.00%	Yes	Regular	
Dr.R.Subasree	GGMPS7294L	M.Sc.,M.Phil.,Ph.D	12.10.2017	Mathematics	Associate Professor	01.06.2016		100.00%		Yes	Regular	
Mrs.B.Yazhini	AHNPY5044Q	M.E	10.06.2014	CSBS	Assistant Professor	01.07.2023		22.22%		Yes	Regular	
Mrs.V.Krishna Meera	DMSPK8318A	M.E	07.07.2017	VLSI DESIGN	Assistant Professor	31.07.2023		22.22%		Yes	Regular	
Dr.K.Karthikeyan	AVWPK4872F	Ph.D.	25.09.2017	Electrical Engineering	Associate Professor	09.05.2013		11.11%		Yes	Regular	
Dr.D.Karthik Prabhu	BOUPK2043G	Ph.D.	27.07.2023	Electrical Engineering	Associate Professor	02.01.2014		12.50%		Yes	Regular	

Mr.A.Manicka Mamallan	AZGPM5936Q	M.E	25.05.2017	Structural Engineering	Assistant Professor	01.06.2017		33.33%	37.50%	Yes	Regular	
Dr. L.Sathikala	BRSPS5656J	M.Sc.,M.Phil.,Ph.D	19.02.2016	Mathematics	Associate Professor	30.05.2013			100.00%	Yes	Regular	
Dr.M.SwarnaSudha	DTPPS8936A	Ph.D	03.11.2023	Computer Science and Engineering	Associate Professor	02.06.2014			33.33%	Yes	Regular	
Mrs.K.Jeyageetha	AZTPJ9217E	M.E	06.07.2011	Computer Science and Engineering	Assistant Professor	18.11.2022			12.50%	Yes	Regular	
Mr.A. Guna	COGPG2187C	M.E	19.06.2019	Control and Instrumentation Engineering	Assistant Professor	02.11.2020			33.33%	No	Regular	02.03.2024
Mrs.V.SrirenaNachiyar	EJHPS1350B	M.E	11.07.2012	ECE	Assistant Professor (SG)	01.12.2015			9.09%	Yes	Regular	
Mrs.R.Chandralekha	BLKPC7743J	M.E	17.06.2020	Communication systems	Assistant Professor	28.07.2022			8.33%	Yes	Regular	
Mrs. K.Usharani	AFEPU2965H	M.E	16.06.2016	CSBS	Assistant Professor	08.05.2023		7.69%		Yes	Regular	
Dr.E.Emerson Nithiaraj	ACSPE0095R	Ph.D.,	21.07.2023	ECE	Assistant Professor	01.07.2023		5.56%		No	Regular	26.06.2024

### 8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Data for first year courses to calculate the FYSFR:

<b>Year</b>	<b>Number of students (approved intake strength)</b>	<b>Number of faculty members (considering fractional load)</b>	<b>FYSFR</b>	<b>Assessment = <math>(5 \times 20)/</math> FYSFR (Limited to Max. 5)</b>
CAY (2024 -25)	60	2	27*	4
CAYm1 (2023 -24)	60	3	17	6
CAYm2 (2022 -23)	60	4	16	6
Average			20	5

\*Value arrived based on the Odd Semester data.

## 8.2 Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification =  $(5x + 3y)/RF$ , x= Number of Regular Faculty with Ph.D, y = Number of Regular Faculty with Post-graduate qualification RF= Number of faculty members required as per SFR of 20:1, Faculty definition as defined in 5.1

<b>Year</b>	<b>X</b>	<b>Y</b>	<b>RF</b>	<b>Assessment of faculty qualification <math>(5x + 3y)/RF</math></b>
CAY (2024 -25)	4	2	3	8.67
CAYm1 (2023 -24)	7	4	3	15.67
CAYm2 (2022 -23)	4	6	3	12.67
Average				12.33

### 8.3. First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the second year.

#### First Year Academic Performance

Academic Performance	2021-2022 (CAYm3)	2022-2023 (CAYm2)	2023-2024 (CAYm1)
Mean of 1 <sup>st</sup> Year Grade Point Average of all successful Students (X)	6.93	7.60	7.32
Total Number of successful students (Y)	43	31	43
Total Number of students appeared in the examination (Z)	43	31	43
First Year Academic Performance = (X*(Y/Z))	6.93	7.60	7.32
Average First Year Academic Performance (AP1+AP2+AP3)/3	<b>7.28</b>		

## 8.4 Attainment of Course Outcomes of first year courses (10)

8.4.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)

(Examples of data collection processes may include, but are not limited to, specific exam questions, laboratory tests, internally developed assessment exams, oral exams assignments, presentations, tutorial sheets etc.)

### Assessment processes

Performance in each course of study shall be evaluated based on

- (i) Continuous Internal Assessment Test throughout the semester and
- (ii) University examination at the end of the semester.

The Internal marks are awarded for a particular course based on the tools listed below

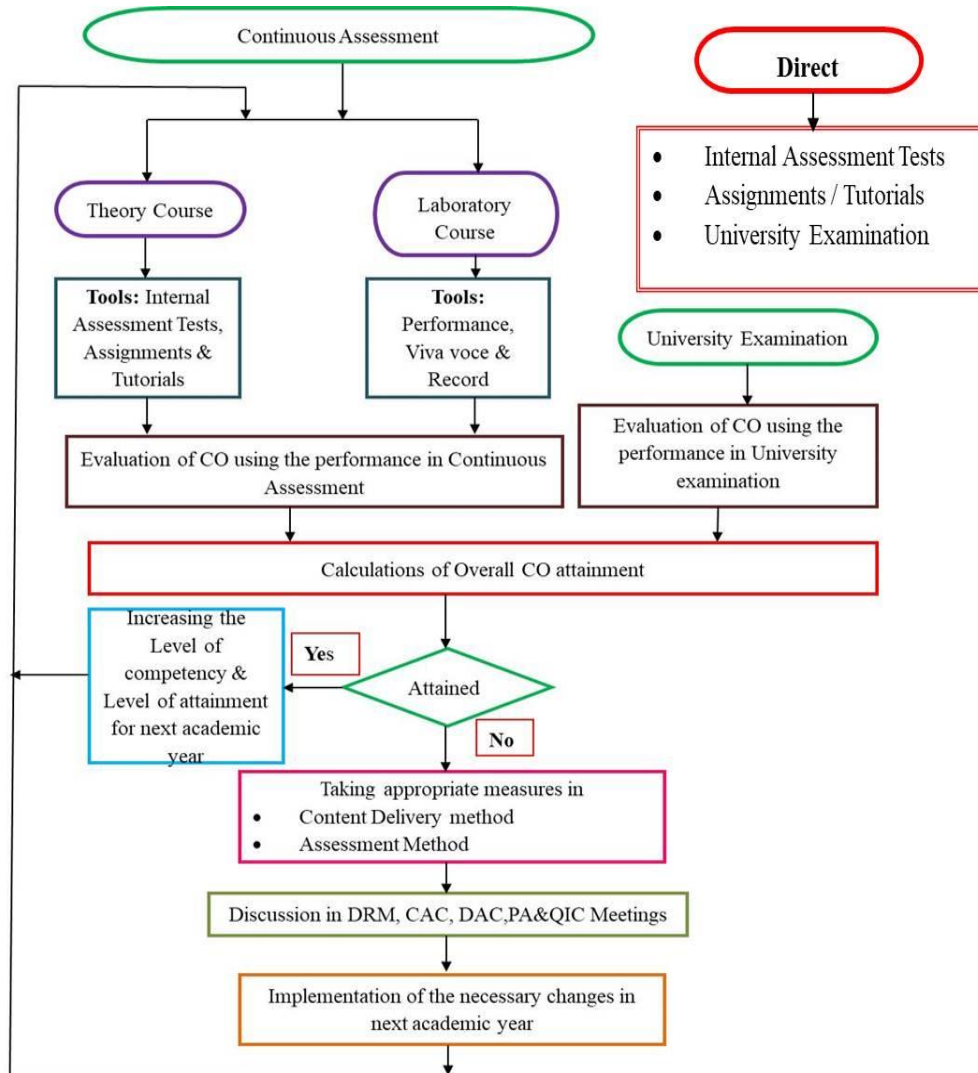
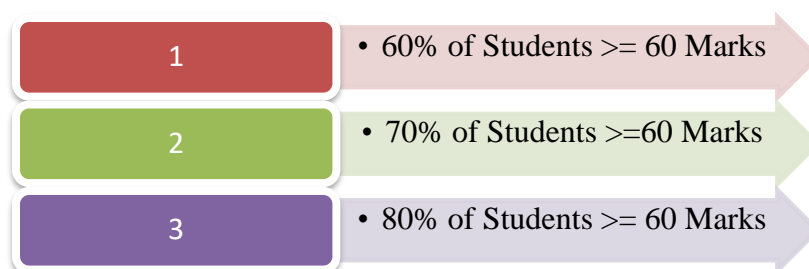


Figure 8.1 Process of CO Attainment

**Direct Assessment:****Table 8.1 Evaluation Methods with process**

<b>Evaluation Methods</b>	<b>Process</b>
Internal Assessment Tests	Internal Assessment Tests are conducted to evaluate the course outcomes. Questions are mapped to Course Outcome. Two tests planned per semester per course and each test questions are mapped with Cos. Test papers are distributed to students within three days after completion of corresponding test.
Assignments & Tutorials	Assignment and tutorial questions are prepared by faculty member based on the course outcome. Tutorials are mandatory for four credit subjects. Assignment and Tutorial marks are recorded for assessing the attainment of COs.
Laboratory Course	Each Laboratory Experiments are mapped with COs by faculty member. Marks are distributed to the students for each experiment based on Rubrics like performance, Viva Voce and Record. Total Marks considered for Practical Internal Assessment are Experiment wise marks and Model Practical examination marks.
University Examination	At the end of each semester, final examination is conducted for Theory and Laboratory courses by Anna University. The question paper covers the entire syllabus and all the COs.

### Attainment Level:



### Theory courses

For each theory course, faculty member calculates the course outcome attainment using university examination and Internal Assessment test. The attainment level will be calculated based on the average performance levels of both university examination and internal assessment test. The evaluation process of Internal Assessment Tests/Assignments/Tutorials/Group Discussion is used as tool with weightage of 40% and 60% weightage will be given for university examination. Based on the level of CO attainment, the faculty member will decide either to increase the competency level or changing the content delivery method, Assessment methods to improve attainment level for the course.

Assessment Tool		Weightage	Frequency
CO Attainment	Internal Assessment Tests	40%	Twice in a Semester
	University Examination	60%	Once in a Semester

### Laboratory Courses

For laboratory courses, the course outcome will be calculated based on, performance, viva-voce, record work and model practical examination with the weightage of 40% for Continuous Internal assessment and 60 % weightage for University Practical Examination. Based on the CO attainment level, the faculty member will decide either to increase the competency level or enhances the practical knowledge of the students in order to improve attainment level for the Laboratory course.

Assessment Tool		Weightage	Frequency
CO Attainment	Continuous Internal Assessment	40%	Every Week
	University Practical Examination	60%	Once in a Semester

### **Internal Marks Calculation:**

The Internal marks are awarded for a particular subject as per the rules and regulations of the Anna University for all theory and practical courses (including project work). The continuous internal assessment shall be for a maximum of 20 marks.

Parameters	Weightage
Internal Assessment Tests	80%
Assignments/Tutorials	20%

### CO Attainment Calculation:

The course outcome for the all courses in terms of percentage is calculated by the ratio between Marks obtained by the students in CO<sub>x</sub> to the Maximum marks allotted to CO<sub>x</sub>. The course outcome is calculated for all the students for all the courses.

$$\text{CO}_x \text{ in } \% = \frac{\text{Marks obtained by the students in CO}_x}{\text{Maximum Marks allotted in CO}_x} \times 100$$

Where, x= [1 to N], N= Number of COs.

CO Attainment level is defined by the following table.

CO <sub>x</sub> Attainment Level	3	80% of the Students Scoring more than or equal to 60% of Marks in CO <sub>x</sub>
	2	70% of the Students Scoring more than or equal to 60% of Marks in CO <sub>x</sub>
	1	60% of the Students Scoring more than or equal to 60% of Marks in CO <sub>x</sub>

Internal Assessment Attainment level is the ratio between sum of all COs attained by students to total number of COs.

$$\text{IAT Attainment Level} = \frac{\text{Sum of all COs attained by students}}{\text{Total Number of COs}}$$

University Attainment level is defined by the following table.

University Attainment Level	3	80% of the Students Scoring more than or equal to 60% of Marks
	2	70% of the Students Scoring more than or equal to 60% of Marks
	1	60% of the Students Scoring more than or equal to 60% of Marks

Overall Attainment is calculated by sum of 40% of Internal Assessment Test Attainment Level and 60% of University Attainment Level.

$$\text{Overall Attainment Level} = (\text{40\% of IAT Attainment Level}) + (\text{60\% of University Attainment Level})$$

**ACADEMIC CALENDAR**  
Academic year: 2022-2023 (ODD Semester)  
UG Degree Programmes  
Regulation 2021

I Semester B.E./B.Tech Programme

Reference: Anna University Academic Schedule: November 2022 - April 2023  
(Semester I) Dated 02.11.2022.

**UG Degree Programmes**

- B.E Civil Engineering
- B.E Computer Science and Engineering
- B.E Electrical and Electronics Engineering
- B.E Electronics and Communications Engineering
- B.E Mechanical Engineering
- B.Tech Artificial Intelligence and Data Science
- B.Tech Computer Science and Business Systems
- B.Tech Information Technology

Detailed Academic Calendar		2022-2023 (Odd Semester)				
NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH		
1 TUE	11 THU	11 SUN	11 WED	11 FRI	11 MON	
2 WED	12 FRI	12 MON	12 THU	12 SUN	12 WED	
3 THU	13 SAT	13 TUE	13 FRI	13 MON	13 THU	
4 FRI	14 SUN	14 FRI	14 WED	14 SAT	14 MON	
5 SAT	15 MON	15 TUE	15 THU	15 SUN	15 WED	
6 SUN	16 TUE	16 FRI	16 MON	16 THU	16 SUN	
7 MON	17 WED	17 SAT	17 TUE	17 FRI	17 MON	
8 TUE	18 THU	18 SUN	18 WED	18 SAT	18 TUE	
9 WED	19 FRI	19 MON	19 THU	19 SUN	19 WED	
10 THU	20 SAT	20 TUE	20 FRI	20 MON	20 THU	
11 FRI	21 SUN	21 FRI	21 WED	21 SAT	21 MON	
12 SAT	22 MON	22 TUE	22 THU	22 SUN	22 WED	
13 SUN	23 TUE	23 FRI	23 MON	23 THU	23 SUN	
14 MON	24 WED	24 SAT	24 TUE	24 FRI	24 MON	
15 TUE	25 THU	25 SUN	25 WED	25 SAT	25 TUE	
16 WED	26 FRI	26 MON	26 THU	26 SUN	26 WED	
17 THU	27 SAT	27 TUE	27 FRI	27 MON	27 THU	
18 FRI	28 SUN	28 FRI	28 WED	28 SAT	28 MON	
19 SAT	29 MON	29 TUE	29 THU	29 SUN	29 WED	
20 SUN	30 TUE	30 FRI	30 MON	30 THU	30 SUN	
21 MON	31 WED	31 SAT	31 TUE	31 FRI	31 MON	

No. of working Days (77) as per Clause 52 maximum of 75 Days of 41st Version		Internal Assessment Test Schedule				
NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH		
01-01	01-01	01-01	01-01	01-01	01-01	
02-01	02-01	02-01	02-01	02-01	02-01	
03-01	03-01	03-01	03-01	03-01	03-01	
04-01	04-01	04-01	04-01	04-01	04-01	
05-01	05-01	05-01	05-01	05-01	05-01	
06-01	06-01	06-01	06-01	06-01	06-01	
07-01	07-01	07-01	07-01	07-01	07-01	
08-01	08-01	08-01	08-01	08-01	08-01	
09-01	09-01	09-01	09-01	09-01	09-01	
10-01	10-01	10-01	10-01	10-01	10-01	
11-01	11-01	11-01	11-01	11-01	11-01	
12-01	12-01	12-01	12-01	12-01	12-01	
13-01	13-01	13-01	13-01	13-01	13-01	
14-01	14-01	14-01	14-01	14-01	14-01	
15-01	15-01	15-01	15-01	15-01	15-01	
16-01	16-01	16-01	16-01	16-01	16-01	
17-01	17-01	17-01	17-01	17-01	17-01	
18-01	18-01	18-01	18-01	18-01	18-01	
19-01	19-01	19-01	19-01	19-01	19-01	
20-01	20-01	20-01	20-01	20-01	20-01	
21-01	21-01	21-01	21-01	21-01	21-01	
22-01	22-01	22-01	22-01	22-01	22-01	
23-01	23-01	23-01	23-01	23-01	23-01	
24-01	24-01	24-01	24-01	24-01	24-01	
25-01	25-01	25-01	25-01	25-01	25-01	
26-01	26-01	26-01	26-01	26-01	26-01	
27-01	27-01	27-01	27-01	27-01	27-01	
28-01	28-01	28-01	28-01	28-01	28-01	
29-01	29-01	29-01	29-01	29-01	29-01	
30-01	30-01	30-01	30-01	30-01	30-01	
31-01	31-01	31-01	31-01	31-01	31-01	

**Figure 8.2 First Year Academic Calendar 2022-23 (ODD Semester)**

**Sample Course for Calculation of CO Attainment:**

**Course Code & Title : CY3151 & Engineering Chemistry**  
**Semester & Year of study : I & I year 2022-23**  
**Course Index : C104**

RAMCO INSTITUTE OF TECHNOLOGY																											
ATTAINMENT CALCULATION																											
Academic Year: 2022-2023(ODD Semester)																											
Name of the Subject: CY3151 - Engineering Chemistry																											
Name of the Faculty: VENKATESH PERUMAL M																											
Year/Semester: I / I - CIVIL																											
Sl.No	Name of the student / Roll No.	CO1					CO2					CO3					CO4					CO5				Univ	
		Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment		Final
1	953622103001	32	25	78	93	84	28	16	57	93	71	38	14	37	95	60	40	17	43	100	66	40	21	53	100	72	60
2	953622103002	40	30	75	100	85	24	18	75	100	85	40	21	53	100	72	40	21	53	93	69	40	21	53	93	69	60
3	953622103003	40	34	85	100	91	40	25	63	100	78	40	23	58	100	75	40	18	45	100	67	40	12	30	100	58	70
4	953622103004	40	23	58	100	75	40	5	13	100	48	40	22	55	100	73	40	14	35	100	61	40	9	23	100	54	60
5	953622103005	40	22	55	100	73	36	10	28	100	57	38	24	63	95	76	40	24	60	100	76	40	29	73	100	84	70
6	953622103006	40	22	55	93	70	40	15	38	93	60	40	5	13	100	48	40	28	70	100	82	40	24	60	100	76	70
7	953622103007	40	21	53	100	72	24	9	38	100	63	40	15	38	95	61	40	9	23	100	54	40	14	35	100	61	50
8	953622103008	40	31	78	93	84	40	20	50	93	67	40	19	48	100	69	40	14	35	100	61	40	21	53	100	72	70
9	953622103009	38	32	84	93	88	38	14	37	93	59	40	14	35	100	61	40	12	30	93	55	40	21	53	93	69	0
10	953622103010	36	16	44	93	64	34	23	68	93	78	36	15	42	100	65	40	18	45	100	67	40	29	73	100	84	70
11	953622103011	32	27	84	93	88	36	32	89	93	90	34	20	59	100	75	40	20	50	100	70	40	21	53	100	72	70
12	953622103012	32	31	97	100	98	40	29	73	100	84	40	19	48	95	67	40	18	45	93	64	40	32	80	93	85	70
13	953622103013	40	26	65	100	79	32	26	81	100	89	40	32	80	100	88	40	27	68	100	81	40	24	60	100	76	70
14	953622103014	40	28	70	100	82	28	15	54	100	72	36	14	39	100	63	40	26	65	100	79	40	25	63	100	78	70
15	953622103015	40	14	35	100	61	36	8	22	100	53	38	22	58	100	75	40	11	28	100	57	40	17	43	100	66	0
16	953622103016	40	25	63	100	78	40	27	68	100	81	40	22	55	95	71	40	27	68	100	81	40	31	78	100	87	70
17	953622103017	40	36	90	100	94	8	6	75	100	85	36	15	42	95	63	40	27	68	100	81	40	25	63	100	78	60
18	953622103018	40	22	55	100	73	40	14	35	100	61	40	14	35	100	61	40	33	83	93	87	40	24	60	93	73	70
19	953622103019	40	19	48	100	69	40	18	45	100	67	40	13	33	95	58	40	17	43	100	66	40	17	43	100	66	60
20	953622103020	40	29	73	100	84	40	24	60	100	76	40	19	48	100	69	40	24	60	100	76	40	23	58	100	75	80
21	953622103021	38	17	45	100	67	30	13	43	100	66	38	23	61	95	74	40	7	18	100	51	40	23	58	100	75	70
22	953622103022	40	21	53	100	72	24	10	42	100	65	40	9	23	95	52	40	14	35	100	61	40	17	43	100	66	50
23	953622103023	40	22	55	100	73	36	13	36	100	62	38	19	50	95	68	40	23	58	100	75	40	20	50	100	70	50
24	953622103024	40	22	55	93	70	40	11	28	93	54	40	13	33	100	60	40	17	43	100	66	40	15	38	100	63	60
25	953622103025	40	33	83	100	90	32	25	78	100	87	40	27	68	100	81	40	15	38	100	63	40	28	70	100	82	70

Sl.No	Name of the student / Roll No.	CO1					CO2					CO3					CO4					CO5					
		Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Max	Score	out of 100	Other Assessment	Final	Univ
26	953622103026	40	39	98	100	99	40	32	80	100	88	38	20	53	100	72	40	30	75	100	85	40	26	65	100	79	90
27	953622103027	34	21	62	100	77	20	9	45	100	67	38	24	63	100	78	40	16	40	100	64	40	21	53	100	72	60
28	953622103028	40	19	48	100	69	40	29	73	100	84	40	29	73	100	84	40	32	80	100	88	40	29	73	100	84	70
29	953622103029	40	22	55	100	73	32	13	41	100	64	40	18	45	95	65	40	18	45	100	67	40	10	25	100	55	50
30	953622103030	40	36	90	100	94	40	39	98	100	99	40	20	50	95	68	40	33	83	100	90	40	33	83	100	90	90
31	953622103031	40	31	78	100	87	30	21	70	100	82	40	21	53	100	72	40	28	70	100	82	40	28	70	100	82	80
No. of Students scored >=60/ Percentage of students		31 / 100%					26 / 83.87%					28 / 90.32%					27 / 87.1%					28 / 90.32%					25 / 80.65%
Direct Attainment (DA)		3					3					3					3					3					3
Course End Survey (CES)		3					3					3					3					3					3
DA(90%) + CES(10%)		3					3					3					3					3					3
Course Attainment : 3																											

Internal Weightage	40	University Weightage	60
IAT Weightage	60	Other Assessment Weightage	40
CO1 Assignment:100 A1-100			
CO2 Assignment:100 A1-100			
CO3 Assignment:100 A1-50 A2-50			
CO4 Assignment:100 A2-100			
CO5 Assignment:100 A2-100			

**Figure 8.3 Sample Attainment taken from online software tool**

The CO attainment level is calculated by as follows

CO1	3	100% of Students scored more than or equal to 60 Marks
CO2	3	80% of Students scored more than or equal to 60 Marks
CO3	3	90% of Students scored more than or equal to 60 Marks
CO4	3	80% of Students scored more than or equal to 60 Marks
CO5	3	80% of Students scored more than or equal to 60 Marks

The course outcomes attainment for the sample course taken above is calculated as per the table mentioned below.

Continuous Internal Assessment Methods (CIAM)	Weightage						CIAM	End Semester
	CO1	CO2	CO3	CO4	CO5			
IAT	60%	60%	60%	60%	60%	90%	40%	60%
Assignment	30%	30%	30%	30%	30%			
CO End Survey	10%	10%	10%	10%	10%			
<b>Total</b>	100 %	100 %	100 %	100 %	100 %	100 %	100%	

**Sample Calculation:**

$$\text{COx in \%} = \frac{\text{Marks obtained by the students in COx}}{\text{Maximum Marks allotted in COx}} \times 100$$

Where, x= [1 to N], N= Number of Cos

Continuous Internal Assessment Methods (CIAM)	Reg. No of the student: 953622103007					
	CO1	CO2	CO3	CO4	CO5	
IAT (60% Weightage)	CO1 in % = $\frac{21}{40}$ =53.00	CO2 in % = $\frac{9}{24}$ =38.00	CO3 in % = $\frac{15}{40}$ = 38.00	CO4 in % = $\frac{9}{40}$ = 23.00	CO5 in % = $\frac{14}{40}$ = 35	-

Assignment (30% Weightage)	CO1 in % = $\frac{30}{30}$ =100	CO2 in % = $\frac{30}{30}$ =100	CO3 in % = $\frac{28.5}{30}$ = 95	CO4 in % = $\frac{30}{30}$ = 100	CO5 in % = $\frac{30}{30}$ = 100	
CO End Survey(10% Weightage)	100	100	100	100	100	
<b>Total</b>	<b>72</b>	<b>63</b>	<b>61</b>	<b>54</b>	<b>61</b>	
<b>Continuous Internal Assessment Methods (CIAM)</b>	<b>Reg. No of the student: 953622103026</b>					
	<b>CO1</b>	<b>CO2</b>	<b>CO3</b>	<b>CO4</b>	<b>CO5</b>	
IAT (60% Weightage)	CO1 in % = $\frac{39}{40}$ =98.00	CO2 in % = $\frac{32}{40}$ = 80.00	CO3 in % = $\frac{20}{38}$ = 53.00	CO4 in % = $\frac{30}{40}$ = 75.00	CO5 in % = $\frac{26}{40}$ = 65.00	-
Assignment (30% Weightage)	CO1 in % = $\frac{30}{30}$ = 100	CO2 in % = $\frac{30}{30}$ = 100	CO3 in % = $\frac{30}{30}$ = 100	CO4 in % = $\frac{30}{30}$ = 100	CO5 in % = $\frac{30}{30}$ = 100	
CO End Survey(10% Weightage)	100	100	100	100	100	
<b>Total</b>	<b>99</b>	<b>88</b>	<b>72</b>	<b>85</b>	<b>79</b>	

Reg. No.

**RAMCO INSTITUTE OF TECHNOLOGY**  
DEPARTMENT OF PHYSICS  
INTERNAL ASSESSMENT TEST - I  
PH3151 ENGINEERING PHYSICS  
(Common to all branches of 1 Year B.E./B.Tech)

Date: 10.01.2023  
Time: 3 hours

Max. Marks: 100

**PART-A Answer ALL Questions (10×2=20 Marks)**

- How centre of mass is determined for rigid bodies and regular shape [CO1, L1]
- Write the kinematics of rotational motion. [CO1, L1]
- When will the angular momentum for a system of particles remains conserved? [CO1, L1]
- A flywheel is a uniform disc of mass 72 kg and radius 50cm. Calculate (a) Moment of Inertia (b) Kinetic energy when it is rotating at 70 r.p.m. [CO1, L3]
- List out the sources of electromagnetic wave. [CO2, L1]
- What do you mean by intrinsic impedance? [CO2, L1]
- Explain how electromagnetic waves have momentum. [CO2, L1]
- Calculate the velocity of a plane wave in a lossless medium having a relative permittivity of 4 and a relative permeability of 1.2 [CO2, L3]
- What is population inversion? How it is achieved? [CO3, L1]
- Can a two-level system be used for the production of laser? Why? [CO3, L1]

**PART-B Answer ALL Questions (5×16=80 Marks)**

- (i) Derive an expression for the moment of inertia of a uniform rod about an axis through its center and perpendicular to its length. [CO1, L3, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (12 Marks)  
(ii) Explain the moment of inertia of thin ring about its diameter. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (4 Marks)  
OR  
11b. State and Prove (a) Parallel axis theorem (b) Perpendicular axis theorem in Moment of Inertia. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)
- (i) Derive the rotational energy level of a rigid diatomic molecule. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (8 Marks)  
(ii) Write short note on gyroscope and its applications. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (8 Marks)  
OR  
12b. (i) What is Torsion pendulum? Derive the equation for its time period of oscillations. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (14 Marks)  
(ii) Explain the characteristics of nonlinear oscillations. [CO1, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (2 Marks)

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- Derive and explain the Maxwell's equations both in differential and integral form. [CO2, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)  
OR  
13b. Obtain the electromagnetic wave equation in free space. Show that velocity of wave is equal to velocity of light in free space. [CO2, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)
- (i) Derive the energy content due to electric and magnetic field in electromagnetic waves. [CO2, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (12 Marks)  
(ii) Explain the reception and transmission of cell phone. [CO2, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (4 Marks)  
OR  
14b. Obtain the expression for transmission and reflection coefficient of EM waves for normal incidence on the interface of a non-conducting medium and free space. [CO2, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)
- Derive the Einstein's coefficient relation and hence deduce the expressions for the ratio of spontaneous emission rate to the stimulated emission rate. [CO3, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)  
OR  
15b. Discuss the construction and working of Homo-junction semiconductor laser. [CO3, L2, PE: 1.2.1, 1.5.1, 1.6.1, 2.5.3, 2.6.3, 10.5.1, 10.6.2, 12.4.1, 12.4.2, 12.6.2] (16 Marks)

CO1: Understand the importance of mechanics.  
CO2: Express their knowledge in electromagnetic waves.  
CO3: Demonstrate a strong foundational knowledge in oscillations, optics and lasers.  
L1: Remember; L2: Understand; L3: Apply

Form No. AC 13b      Rev.No. 01      Effective Date: 16.08.2017

**Figure 8.4 IAT1 Question Paper: PH3151 Engineering Physics**

Reg. No.

**RAMCO INSTITUTE OF TECHNOLOGY**  
DEPARTMENT OF PHYSICS  
INTERNAL ASSESSMENT TEST - II  
PH3201 PHYSICS FOR CIVIL ENGINEERING  
Regulation 2021

Semester and Branch: II Semester B.E. Civil Engineering Date: 02.08.2023  
Max. Marks: 100 Time: 3 hours

**PART-A Answer ALL Questions (10x2=20 Marks)**

- What is daylight harvesting? [CO3, L1]
- Discuss the principle of artificial lighting. [CO3, L2]
- What is the role of matrix in composites? [CO4, L1]
- Why metallic glasses are used in cores of high power transformers? [CO4, L1]
- Define shape memory effect. [CO4, L2]
- Compare crystalline and non-crystalline ceramics. [CO4, L2]
- What is hypocenter? [CO5, L1]
- Mention the significance of deterministic seismic hazard analysis. [CO5, L1]
- Illustrate the categories of cyclone based on wind speeds, their capacity to cause damage. [CO5, L2]
- Compare class D and class K fires. [CO5, L2]

**PART-B Answer ALL Questions (5x16=80 marks)**

- Explain in detail daylight calculation and day light factor. [CO3, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)
- Discuss the construction and working of mirror box artificial sky. [CO3, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- Discuss any two artificial light sources. [CO3, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- Explain supplementary artificial lighting in detail. [CO3, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)
- What are metallic glasses? Describe the preparation of metallic glasses. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)
- Explain the properties and applications of metallic glasses. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- Write a note on bonded ceramics. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- With neat diagram explain slip casting technique. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)
- Describe the phases of SMA with neat diagram. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- Discuss in detail the characteristics and applications of SMA. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)

Form No. AC 13h Rev.No. 00 Effective Date: 18.02.2022

**Figure 8.5 IAT2 Question Paper: PH3201 Physics for Civil Engineering**

Reg. No.

**RAMCO INSTITUTE OF TECHNOLOGY**  
DEPARTMENT OF MATHEMATICS  
INTERNAL ASSESSMENT TEST - II RETEST  
MA3251 - STATISTICS AND NUMERICAL METHODS  
(Common to all branches II semester B.E./B. Tech.)  
Regulations 2021

Date: 08.08.2023 Max. Marks: 100 Time: 3 hours

**PART-A Answer ALL Questions (10x2=20 Marks)**

- State the condition for the convergence of Gauss-Jacobi method and Gauss-Seidel method. [CO3, L1]
- Find all the eigen values of  $A = \begin{pmatrix} 2 & 3 \\ 3 & 2 \end{pmatrix}$  by Jacobi method. [CO3, L2]
- Obtain the Lagrange interpolation polynomial for the data: [CO4, L2]

x	0	1	3
y	5	6	14

- When will we use Newton's forward interpolation formula? [CO4, L1]
- Evaluate  $\int_{-1}^2 \frac{x}{1+x^2} dx$  using Trapezoidal rule taking h = 0.25. [CO4, L2]
- State Simpson's rule for Double integration. [CO4, L1]
- Write down Taylor series formula. [CO5, L1]
- Find y(0.1) by Euler's method, given that  $\frac{dy}{dx} = x^2 + y^2, y(0) = 0.1$  [CO5, L2]
- What are single step and multistep methods? Give an example. [CO5, L1]
- Write down the Adam-Bashforth predictor and corrector formula. [CO5, L1]

**PART-B Answer ALL Questions (5x16=80 Marks)**

- Solve the following system of equations by Gauss Jacobi method. [CO3, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)  
 $4x - 2y - z = 14, x - 5y - 2z = 10, x + y + 8z = 20$
- Find the numerically largest eigen value and the corresponding eigen vector of  $A = \begin{pmatrix} 1 & -3 & 2 \\ 4 & 4 & -1 \\ 6 & 3 & 5 \end{pmatrix}$  by the power method. [CO3, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)
- Solve by Gauss-Seidel method: [CO3, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)  
 $27x - 6y - z = 85, 6x + 15y + 2z = 72, x + y + 54z = 110$
- Find the eigen values and eigen vectors of the matrix  $A = \begin{pmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{pmatrix}$  using Jacobi's method. [CO3, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)
- For the given values evaluate f(9) using Lagrange's formula. [CO4, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)

x	5	7	11	13	17
f(x)	150	392	1452	2366	5202

- From the following data estimate, the number of persons earning weekly wages between 60 and 70 rupees. [CO4, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)

Wages (in Rs.)	Below 40	40-60	60-80	80-100	100-120
No. of persons (in thousands)	250	120	100	70	50

- Find the cubic polynomial from the following table using Newton's divided difference formula and hence find f(4). [CO4, L3, PE: 1.1.1, 2.1.1, 2.1.3, 2.2.3] (8 Marks)

X	0	1	2	5
Y	2	3	12	147

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**Figure 8.6 IAT2 Retest Question Paper: MA3251 Statics and Numerical Methods**

Reg. No.

- List out the properties of composites. [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (2 Marks)
- Explain in detail Fiber Reinforced Plastics (FRP) and Fiber Reinforced Metals (FRM). [CO4, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (4 Marks)
- Explain seismology and its uses. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)
- Discuss the methods to estimate earthquake site effects. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)

**OR**

- Explain cyclone hazards in detail. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (12 Marks)
- Describe the different types of flood hazards. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (4 Marks)
- Explain the types of seismic waves with diagram. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (10 Marks)
- Explain Probabilistic seismic hazard analysis in detail. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (6 Marks)

**OR**

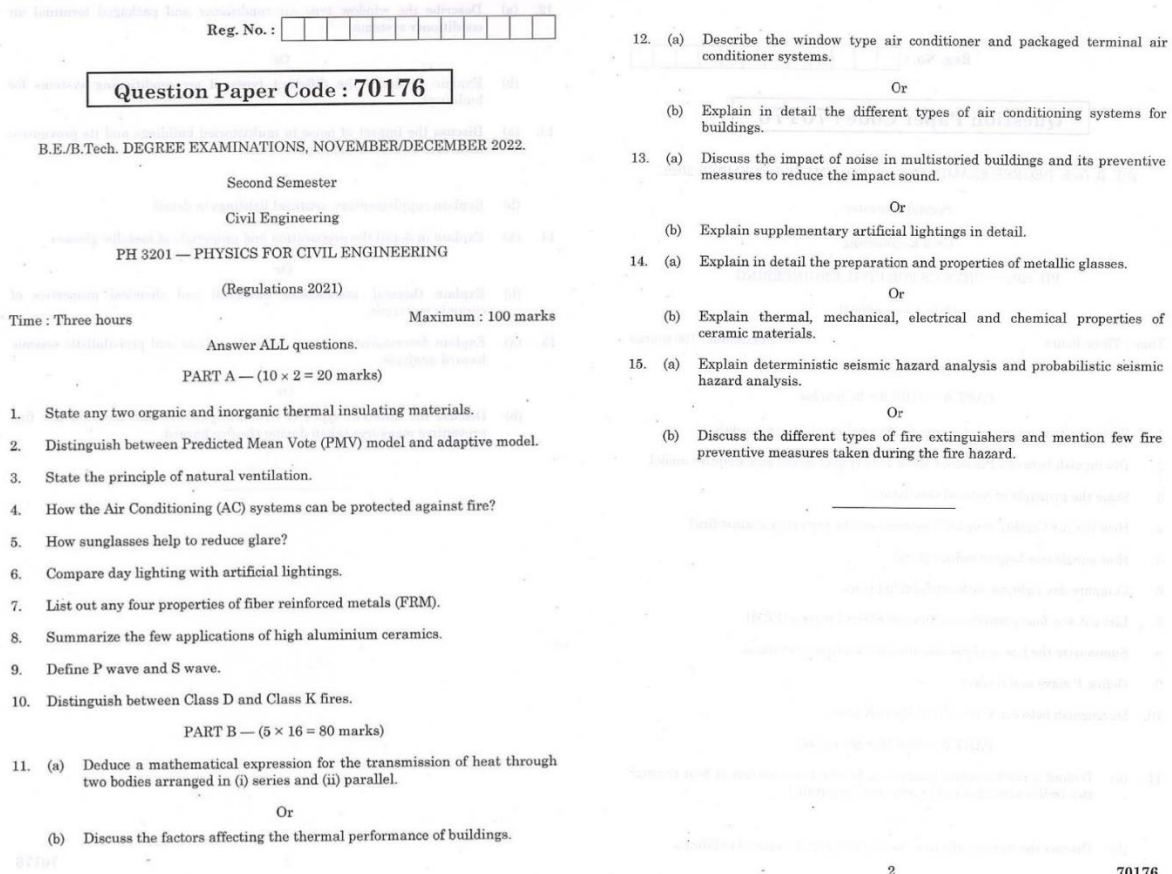
- Write a short note on fire safety regulations. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (8 Marks)
- Explain the preventive measures taken during fire hazards. [CO5, L2, PE: 1.2.1, 2.2.3, 10.2.1, 10.3.2, 12.1.1, 12.1.2, 12.3.2] (8 Marks)

CO3: Understand the concepts of sound absorption, noise insulation and lighting designs  
CO4: Elaborate the processing and applications of composites, metallic glasses, shape memory alloys and ceramics  
CO5: Adapt the knowledge on natural disasters such as earthquake, cyclone, fire and safety measures

L1: Remember; L2: Understand; L3: Apply

\*\*\*\*\*

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**Figure 8.7 Semester Question Paper: PH3201 Physics for Civil Engineering**

#### 8.4.2 Record the attainment of Course Outcomes of all first-year courses (5)

*(The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for the assessment years. Attainment level is to be measured in terms of student performance in internal assessments with respect the COs of a subject plus the performance in the University examination)*

The attainment level for each course is decided by the respective faculty in-charge. The attainment of COs for all subjects of I year during the academic year 2021-22, 2022-23, 2023-24 are assessed by having 60% weightage for university examination and 40% weightage to internal assessment tests.

**Table 8.2 Attainment of Course Outcomes (AY 2021-22)**

Course Code NBA	Subject code	Subject title	Target Level for CO Attainment	Total CO Attainment	Remarks
C101	HS3251	Professional English I	1.8	2.9	Attained
C102	MA3151	Matrices and Calculus	1.8	2.14	Attained
C103	PH3151	Engineering Physics	1.8	2.57	Attained
C104	CY3151	Engineering Chemistry	1.8	2.82	Attained
C105	GE3151	Problem solving and Python Programming	1.8	2.58	Attained
C107	GE3171	Problem Solving and Python Programming Laboratory	1.8	3	Attained
C108	BS3171	Physics and Chemistry Laboratory	1.8	2.76	Attained
C109	GE3172	English Laboratory	1.8	3	Attained
C110	HS3251	Professional English II	1.8	3	Attained
C111	MA3251	Statistics and Numerical Methods	1.8	2.28	Attained

C112	PH3201	Physics for Civil Engineering	1.8	2.5	Attained
C113	BE3252	Basic Electrical, Electronics and Instrumentation Engineering	1.8	0.833	Not attained
C114	GE3251	Engineering Graphics	1.8	2.18	Attained
C116	GE3271	Engineering Practices Laboratory	1.8	3	Attained
C117	BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	1.8	3	Attained
C118	GE3272	Communication Laboratory /Foreign Language	1.8	3	Attained

**Table 8.3 Attainment of Course Outcomes (AY 2022-23)**

<b>Course Code NBA</b>	<b>Subject code</b>	<b>Subject title</b>	<b>Target Level for CO Attainment</b>	<b>Total CO Attainment</b>	<b>Remarks</b>
C101	HS3251	Professional English I	2.8	3	Attained
C102	MA3151	Matrices and Calculus	2.52	2.42	Not Attained
C103	PH3151	Engineering Physics	1.8	2.86	Attained
C104	CY3151	Engineering Chemistry	1.8	2.4	Attained
C105	GE3151	Problem solving and Python Programming	1.8	2.28	Attained
C107	GE3171	Problem Solving and Python Programming Laboratory	3	3	Attained
C108	BS3171	Physics and Chemistry Laboratory	2.5	2.76	Attained
C109	GE3172	English Laboratory	3	3	Attained
C110	HS3251	Professional English II	2.2	2.6	Attained
C111	MA3251	Statistics and Numerical Methods	2.2	3	Attained
C112	PH3201	Physics for Civil Engineering	1.8	2.93	Attained
C113	BE3252	Basic Electrical, Electronics and Instrumentation Engineering	1.85	3	Attained
C114	GE3251	Engineering Graphics	2.31	2.18	Not Attained
C116	GE3271	Engineering Practices Laboratory	3	3	Attained
C117	BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	3	3	Attained
C118	GE3272	Communication Laboratory /Foreign Language	3	3	Attained

**Table 8.4 Attainment of Course Outcomes (AY 2023-24)**

<b>Course Code NBA</b>	<b>Subject code</b>	<b>Subject title</b>	<b>Target Level for CO Attainment</b>	<b>Total CO Attainment</b>	<b>Remarks</b>
C101	HS3251	Professional English I	1.9	1.8	Not Attained
C102	MA3151	Matrices and Calculus	2.36	1.73	Not Attained
C103	PH3151	Engineering Physics	1.8	1.93	Attained
C104	CY3151	Engineering Chemistry	1.9	2.11	Attained
C105	GE3151	Problem solving and Python Programming	2.26	1.52	Not Attained
C107	GE3171	Problem Solving and Python Programming Laboratory	2.26	3	Attained
C108	BS3171	Physics and Chemistry Laboratory	2.8	3.0	Attained
C109	GE3172	English Laboratory	3	3	Attained
C110	HS3251	Professional English II	1.9	2.68	Attained
C111	MA3251	Statistics and Numerical Methods	3	2.27	Not Attained
C112	PH3201	Physics for Civil Engineering	1.89	2	Attained
C113	BE3252	Basic Electrical, Electronics and Instrumentation Engineering	1.85	1.72	Not Attained
C114	GE3251	Engineering Graphics	2.31	2.21	Not Attained
C116	GE3271	Engineering Practices Laboratory	2.8	3	Attained
C117	BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	2.8	3	Attained
C118	GE3272	Communication Laboratory /Foreign Language	3	3	Attained

## 8.5. Attainment of Program Outcomes from first year courses (20)

### 8.5.1. Indicate results of evaluation of each relevant PO and/or PSO, if applicable (15)

(Describe the assessment processes that demonstrate the degree to which the Program Outcomes are attained through first year courses and document the attainment levels. Also include information on assessment processes used to gather the data upon which the evaluation of each Program Outcome is based indicating the frequency with which these processes are carried out)

**Table 8.5 Attainment of Programme Outcomes (AY 2022-23)**

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101									0.8	1.6		
C102	2.15	2.15	2.42		0.80				0.80			0.80
C103	2.09	1.71								1.62		2.57
C104	1.6		0.8	0.8								0.8
C105	2.28	1.52	1.52	1.14	1.52			0.76	0.76	0.912		0.76
C107	3	3	2.2	2	2.2			1	2	1.2		1
C108	2.57	1.38	2.14	2.76		1.22			1.52	1.38		1.95
C109									0.8	2.6		
C110									0.69	1.38		
C111	3	2	2	2	2				1			1
C112	2.24	1.46								1.66		2.63
C113	3	2	1		1			1	2	1		1
C114	2.03	2.18			1.45					2.18		0.72
C116	1.83	1	1	1			2.83	2	2		2	
C117	3	2	1		1			1		1		1
C118									0.8	2.6		

**Table 8.6 PO Attainment Level**

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Direct attainment	2.40	1.86	1.56	1.62	1.43	1.22	2.83	1.15	1.2	1.6	2.00	1.30
CO attainment	2.40	1.86	1.56	1.62	1.43	1.22	2.83	1.15	1.2	1.6	2.00	1.30

**Table 8.7 PSO Attainment**

Course Code	PSO1	PSO2	PSO3	PSO4
C101				
C102		0.80	0.80	0.80
C103				
C104		1.06		
C105			0.76	
C107			2	
C108	1.22			
C109				

C110				
C111			1	
C112				
C113				
C114	1.45			
C116				
C117				
C118				

**Table 8.8 PSO Attainment Level**

Course Code	PSO1	PSO2	PSO3	PSO4
Direct attainment	1.34	0.94	1.14	0.80
CO attainment	1.34	0.94	1.14	0.80

### 8.5.2. Actions taken based on the results of evaluation of relevant POs (5)

(The attainment levels by direct (student performance) are to be presented through Program level Course-PO matrix as indicated)

**Table 8.9 PO Attainment and Actions for improvement for 2023-24**

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge			
PO1	1.6	2.40	Target Attained
Actions taken: Nil			
PO2: Problem analysis			
PO2	1.6	1.86	Target Attained
Actions taken: Nil			
PO3: Design/development of solutions			
PO3	1.6	1.56	Students need to acquire knowledge in developing solutions for the given problem in engineering graphics course, etc.
Actions taken: <ul style="list-style-type: none"> <li>• More tutorial classes / assignments are conducted to expose the students to solve more problems</li> </ul>			
PO4: Conduct investigations of complex problems			
PO4	1.6	1.62	Target Attained
Actions taken: Nil			
PO5: Modern tool usage			
PO5	1.6	1.43	Modern tools & software tools are introduced in a minimum level to the students which made them to feel difficult in understanding Engineering Graphics, Python Programming, Engineering mechanics etc.
Actions taken: <ol style="list-style-type: none"> <li>1. Awareness was given on Digital drawing platforms such as AutoCAD, Revit Architecture for Engineering Graphics course</li> <li>2. Google Classroom and Canvas are used for posting course materials</li> <li>3. Google meet tool is used for webinar conduction</li> <li>4. Virtual Labs are used in Physics, Chemistry &amp; Communication Laboratories</li> </ol>			
PO6: The engineer and society			
PO6	1.6	1.22	Students are need to be exposed in social, health, safety and cultural awareness.
Actions taken: <ol style="list-style-type: none"> <li>1. One hour per each week was separately conducted for personality improvement and Character</li> </ol>			

Development.			
2. Awareness posters on food waste in the hostel has been made.			
3. Students are encouraged to participate in the socialistic activities through RIT clubs & NSS.			
4. Students are encouraged to showcase their performance through various club activities.			
PO7: Environment and sustainability			
PO7	1.6	2.83	Target Attained
Actions taken: Nil			
PO8: Ethics			
PO8	1.6	1.15	Need to impart moral values and ethical principles in students
Actions taken:			
1. Students are educated with concept of Universal Human Values/ Holistic living to help them to have a better understanding of life and practical ethical values			
2. By taking part in special seminar, students explore their truth, inner strength and potential, so that they seem to be very confident, and exhibit love and respect for fellow peers			
3. Through Mentoring, the students are educated on Ethical values			
PO9: Individual and team work			
PO9	1.6	1.29	Students need to learn the power of working as a team to learn skills and knowledge from others.
Actions taken:			
<ul style="list-style-type: none"> <li>Students are encouraged to participate &amp; organize co-curricular and extracurricular activities as individuals and as well as a team.</li> </ul>			
PO10: Communication			
PO10	1.6	1.39	It is found that for a considerable strength of students admitted from State board education lag in communication skills
Actions taken:			
1. Group Activities are conducted to enhance presentation skills & thinking skill etc.			
2. Each day 10-min presentation is given by the students of their own topic to improve self confidence in their communication.			
3. Events are organized through Elite Club and students are encouraged to participate.			
4. Tamil Mandram club organizes various events to improve communication skills and students are encouraged to participate.			
PO11: Project management and finance			
PO11	1.6	2.00	Target Attained
Actions taken: Nil			
PO12: Life-long learning			
PO12	1.6	1.30	Some strength of students is found learning only through the academic courses offered by the institute. Usage of Library resources like newspapers and magazines are found low.
Actions taken:			
1. Overview of Online Courses like NPTEL, etc are shared and they are encouraged to participate.			
2. 10-min presentations are made compulsory as daily practice, which motivate them to do a Life Long Learning.			

**Table 8.10 PSO attainment level**

PSO 2022-23			
PSO1	Communicate and present civil engineering projects effectively.		
PSO1	1.6	1.34	Target not attained
Actions taken:			
<ul style="list-style-type: none"> <li>Students are encouraged to participate in project expo, mini projects, short term IPT, Industrial visits, webinars, etc. related to civil engineering projects.</li> </ul>			
PSO2	Use the techniques, skills, and modern engineering tools necessary for civil engineering practice and project management.		
PSO2	1.6	0.94	Target not attained

<p>Actions taken:</p> <ul style="list-style-type: none"> <li>• Students are encouraged to practice AutoCAD software tool to improve their skills and learn basic technology and its principles used in field practices through guest lectures, webinars, etc.</li> </ul>			
PSO3	Provide sustainable solutions to civil engineering problems		
PSO3	1.6	1.14	Target not attained
<p>Actions taken:</p> <ul style="list-style-type: none"> <li>• Students are encouraged to enrol for IGBC membership and attend webinars, seminars, STTP.</li> <li>• Students are encouraged to do Mini Projects related to sustainability materials.</li> <li>• Students are encouraged to participate in MSME activities.</li> </ul>			
PSO4	Perform as design consultants in construction industry for the design of civil engineering structures.		
PSO4	1.6	0.80	Target not attained
<p>Actions taken:</p> <ul style="list-style-type: none"> <li>• Students are encouraged to plan a residential building using drawing tools and AutoCAD software.</li> <li>• They are also encouraged to do a case study of institution building and its components.</li> </ul>			