

<b>CRITERION 8</b>	<b>First Year Academics</b>	<b>50</b>
<b>Marks Claimed</b>		<b>43.46</b>

**8.1. First Year Student-Faculty Ratio (FYsFR) (5)****Claimed 5**

Data for first year courses to calculate the FYsFR:

In order to determine the First Year Student Faculty Ratio (FYsFR) we obtained the number of faculty member (F) contributing in first year courses considering their fractional load. The number of faculty member (F) is rounded off to nearest integer. The actual intake of students in all branches together is taken as the number of students (N). The ratio of number of faculty members (F) and the number of students (N) gives us the FYsFR. Assessment (limited to 5) is determined from the formula  $(5 \times 20) / \text{FYsFR}$ . These calculations are tabulated below:

Year	Number of Students (actual intake, N)	Number of Faculty Members (F)	FYsFR	Assessment = $(5 \times 20) / \text{FYsFR}$ (Limited to Max.5)
CAY (2020-2021)	899	52	17.28	5
CAYm1 (2019-2020)	778	46	16.91	5
CAYm2 (2018-2019)	672	36	18	5
<b>Average</b>	<b>783</b>	<b>44</b>	<b>17.3</b>	<b>5</b>

*Table B.8.1***8.2. Qualification of Faculty Teaching First Year Common Courses (5)****Claimed 4.76**

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 required as per SFR of 20:1, Faculty definition as defined in 5.1. Most Faculty (X) are doctorates, however, few Faculty (Y) are postgraduates. The Number of Faculty Members (RF) is determined by dividing the Number of Students (N) by 20. The numbers are shown in the table given below:

Academic Year	X	Y	RF	Assessment of Faculty Qualification $(5X+3Y)/RF$
CAY(2020-2021)	30	22	45	5.4
CAYm1(2019-2020)	24	22	38.9	4.78
CAYm2(2018-2019)	15	21	33.6	4.10
<b>Average Assessment</b>				<b>4.76</b>

*Table B.8.2*

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

Claimed 5.7

*Academic Performance Index (API)= (Mean of 1<sup>st</sup> 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) × (number of successful students/number of students appeared in the examination). Successful students are those who are permitted to proceed to the second year.*

The Mean of 1<sup>st</sup> Year Grade Point Average (GPA) of all successful Students on a 10 point scale (G), is taken as average of the mean of Student Performance Index (SPI) for Semester-I and Semester-II, of all successful Students promoted to 2<sup>nd</sup> year. The backlog students have not been considered in these calculations.

Academic year	1st Year Mean GPA (G)	No. of Successful Students (S)	No. of Students Appeared (N)	API= G×(S/N)	Average API
2019-2020	7.65	637	640	7.61	5.7
2018-2019	7.17	375	481	5.59	
2017-2018	7.11	235	439	3.81	

Table B.8.3

**8.4. Attainment of Course Outcomes of first year courses (10)**

Claimed 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)**

Claimed 5

**Assessment Processes:**

There are two assessment processes:

- (i) **Direct Assessment Processes:**
  - (a) **Mid Term Exam**
  - (b) **End Semester Exam**
  - (c) **Practical Exam**
  - (d) **Continuous Assessment (Assignments)**
- (ii) **Indirect Assessment Processes:**
  - (a) **Course Exit Survey**
  - (b) **Program Level Surveys (not applicable for 1<sup>st</sup> year)**

To assess the course outcomes, direct and indirect assessment processes are used. Direct assessment consists of one internal and one end-semester examination whereas indirect assessment is obtained using course exit survey. The Internal Assessment (including assignments and one mid-term examination) contributes to 40% and End Semester Examination contributes to 60% of the overall assessment of each Course Outcome.

Overall Attainment of Program Outcomes is determined as below:

**80% of the Direct Attainment**

**20% of the Indirect Attainment**

Examination questions are designed to test the Attainment Level of the defined Course Outcomes. In general, mid-term examination (of 30 marks) is used to assess the Attainment Level for CO1 and CO2 respectively, the assignment (of 10 marks) is used to assess attainment of CO3. The questions of end-semester examination (of 60 marks) are equally distributed over all five COs of the course. However, teachers are free to use their own methods to determine the attainment of COs using different distribution of marks.

The students admitted to the first year of B.Tech. Courses are grouped in Eight Sections. The CO attainment (for all COs) for a particular course is determined separately for each section and their average is taken as the attainment of the COs for that particular course. The total marks obtained by the students (of a particular section) in each CO are combined together. The attainment level of a particular CO (in percentage) is determined by taking the ratio of the total marks obtained by the students and the total marks allocated to that CO. The percentage of marks is categorized in three groups and assigned different weightage.

**Attainment Levels: (For Theory Subjects)**

**For Academic Year 2018-2019 & 2019-20**

50% students scoring more than benchmark (50%) ---Level-1

60% students scoring more than benchmark (50%) ---Level-2

70% students scoring more than benchmark (50%) ---Level-3

**For Academic Year 2017-2018**

50% students scoring more than benchmark (40%) ---Level-1

60% students scoring more than benchmark (40%) ---Level-2

75% students scoring more than benchmark (40%) ---Level-3

**(For Laboratory Subjects)**

**For Academic Year 2017-2018, 2018-2019 & 2019-20**

60% students scoring more than benchmark (50%) ---Level-1

70% students scoring more than benchmark (50%) ---Level-2

80% students scoring more than benchmark (50%) ---Level-3

### Course Structure of B. Tech. 1st Year (Scheme till Spring 2019)

#### 1<sup>st</sup> Semester (Common to All Branches): Autumn

S. No.	Course Type	Course Code	Course Name	Credit	L	T	P	HRS	Maximum Marks	
									Mid-term	End-term
1.	Theory	HSS-101	Communication Skills & Oral Presentation	03	3	0	0	3	30	60
2.	Theory	PHY-101	Physics – I	03	2	1	0	3	30	60
3.	Theory	CHM-101	Chemistry-I	03	2	1	0	3	30	60
4.	Theory	MTH-101	Mathematics - I	03	3	1	0	4	30	60
5.	Theory/Lab	CIV-102	Engineering Drawing	03	2	0	0	4	30	60
6.	Theory	IT-101	Computer Fundamentals and Problem-Solving Techniques	03	3	3	0	3	30	60
7.	Lab	WSP-1	Workshop Practice-I	02	0	0	4	3	40	60
8.	Lab	PHY-102P	Physics Lab	01	0	0	2	3	40	60
9.	Lab	CHM-101P	Chemistry Lab	01	0	0	2	3	40	60
10.	Lab	IT-1023	Computer Fundamental Lab	01	0	0	2	3	40	60

*Table B.8.4.1a*

#### 2<sup>nd</sup> Semester (Common to All Branches): Spring

S. No.	Course Type	Course Code	Course Name	Credit	L	T	P	HRS	Maximum Marks	
									Mid-term	End-term
1.	Theory	HSS-201	Introduction to Social Sciences	03	3	0	0	3	30	60
2.	Theory	PHY-201	Physics – II	03	2	1	0	3	30	60
3.	Theory	CHM-201	Chemistry-II	03	2	1	0	3	30	60
4.	Theory	MTH-201	Mathematics - II	03	3	1	4	3	30	60
5.	Theory	MEC-201	Machine Drawing	03	1	0	4	3	30	60
6.	Theory	CSE-201	Computer Programming	03	3	3	0	3	30	60
7.	Theory	CIV-	Strength of Materials	03	3	3	0	3	30	60
8.	Lab	WSP-2	Workshop Practice-II	02	0	0	4	2	40	60
9.	Lab	PHY-202P	Physics Lab	01	0	0	2	2	40	60
10.	Lab	CHM-201P	Chemistry Lab	01	0	0	2	3	40	60
11.	Lab	CSE-202P	CSE Lab	01	0	0	2	2	40	60

*Table B.8.4.1b*

### Course Structure of B. Tech. 1st Year (New Scheme from autumn 2019)

#### 1<sup>st</sup> Semester (Group A)

#### Electrical / Electronics & Comm. / Computer Science / Information Technology

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	EEL100	Basic Electrical Engineering	Electrical	4	3	1	0	4
2	HUL100	Basic English and Communication Skills	Humanities	3	2	1	0	3
3	ITL100	Computer Programming	Information Technology	3	2	1	0	3
4	CYL100	Engineering	Chemistry	4	3	1	0	4

		Chemistry						
5	CIP100	Engineering Drawing	Civil	4	1	0	6	7
6	MAL100	Mathematics I	Mathematics	4	3	1	0	4
7	ELP100	Basic Electrical Engineering Laboratory	Electrical	1	0	0	2	2
8	CYP100	Chemistry Laboratory	Chemistry	1	0	0	2	2
9	ITP100	Computer Programming Laboratory	Information Technology	1	0	0	2	2
		<b>Total</b>		25	14	5	12	31

*Table B.8.4.1c***1<sup>st</sup> Semester (Group B)****Civil/ Mechanical / Chemical / Mett& Mat Science**

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	MEL100	Elements of Mechanical Engg.	Mechanical	3	2	1	0	3
2	PHL100	Engineering Physics	Physics	4	3	1	0	4
3	CIL100	Engineering Mechanics	Civil	4	3	1	0	4
4	HUL100	Basic English and Communication Skills	Humanities	3	2	1	0	3
5	CYL101	Environmental Studies	Chemistry	3	2	1	0	3
6	MAL100	Mathematics I	Mathematics	4	3	1	0	4
7	HUP100	Language Laboratory	Humanities	1	0	0	2	2
8	PHP100	Physics Laboratory	Physics	1	0	0	2	2
9	WSP100	Work shop Practice	Work shop	2	0	0	5	5
		<b>Total</b>		25	15	6	9	30

*Table B.8.4.1d***2<sup>nd</sup> Semester (Group A)****Electrical / Electronics & Comm. / Computer Science / Information Technology**

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	HUL101	Advanced English Comm. Skills & Organizational Behavior	Humanities	3	2	1	0	3
2	PHL100	Engineering Physics	Physics	4	3	1	0	4
3	CIL100	Engineering Mechanics	Civil	4	3	1	0	4

4	MEL100	Elements of Mechanical Engg.	Mechanical	3	2	1	0	3
5	CYL101	Environmental Studies	Chemistry	3	2	1	0	3
6	MAL101	Mathematics II	Mathematics	4	3	1	0	4
7	HUP100	Language Laboratory	Humanities	1	0	0	2	2
8	PHP100	Physics Laboratory	Physics	1	0	0	2	2
9	WSP100	Work shop Practice	Work shop	2	0	0	5	5
		<b>Total</b>		25	15	6	8	30

*Table B.8.4.1e***2<sup>nd</sup> Semester (Group B)****Civil/ Mechanical / Chemical / Mett& Mat Science**

S. No.	Course Code	Course Title	Department Offering	Credit	Contact Hours			
					L	T	P	Total
1	HUL101	Advanced English Comm. Skills & Organizational Behavior	Humanities	3	2	1	0	3
2	EEL100	Basic Electrical Engineering	Electrical	4	3	1	0	4
3	ITL100	Computer Programming	Information Technology	3	2	1	0	3
4	CYL100	Engineering Chemistry	Chemistry	4	3	1	0	4
5	CIP100	Engineering Drawing	Civil	4	1	0	6	7
6	MAL101	Mathematics II	Mathematics	4	3	1	0	4
7	ELP100	Basic Electrical Engineering Laboratory	Electrical	1	0	0	2	2
8	CYP100	Chemistry Laboratory	Chemistry	1	0	0	2	2
9	ITP100	Computer Programming Laboratory	Information Technology	1	0	0	2	2
		<b>Total</b>		25	14	5	12	31

*Table B.8.4.1f***Assessment Processes (Sample)**

Course Outcomes (COs) are defined for each course by the concerned teachers and approved by DUGC of the department. The Course Outcomes are displayed on notice boards and also explained to the students by the concerned teachers in the beginning of the course. The COs of each (theory and lab) courses are mapped with Program Outcomes (POs). The CO-PO mapping table for the sample course Paper Code: HSS-101 Autumn Semester (2017), 1st Semester (1st Year), B. Tech Civil Engineering; Subject: Communication Skills and Oral Presentation (HSS 101) are shown in the below Table B.8.4.1g.

### Course Articulation Matrix for the sample course HSS-101

Code	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
HSS-101.CO1	To exhibit effective reading and writing skills.									2	3	2	
HSS-101.CO2	To use grammatical elements correctly.									2	2	2	
HSS-101.CO3	To produce project reports with efficient technical writing skills.									2	3	3	
HSS-101.CO4	To give effective oral presentation in English.									3	2	2	
	<b>Average Value</b>									<b>2.25</b>	<b>2.5</b>	<b>2.25</b>	

*Table B.8.4.1g*

### The syllabus based CO-PO mapping of all courses offered during first year:

#### The Program Articulation Matrix for the first year courses

Course Name	Course Code	PO	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Communication Skills & Oral Presentation	HSS-101									2.25	2.5	2.25	
Physics – I	PHY-101	3	3	2.75	2	2	1			1			
Chemistry-I	CHM-101	2.5	1.5			2.5	2	2.25			1.33	2	1.25
Mathematics - I	MTH-101101	2.4	1.8	2.6								1	
Engineering Drawing	CIV-102	3	3	3	3	2	2	2		3	3	2	2
Computer Fundamentals and Problem-Solving Techniques	IT-101	2.5	3	1		2							2
Workshop Practice-I	WSP-1	3	1	1		1	1	2	1	3	1	2	2
Physics Lab	PHY-102P	3	3	2.75	2	2	1			1			
Chemistry Lab-I	CHM-101P	2.5	1.5			2.5	2	2.25			1.33	2	1.25
Computer Fundamental Lab	IT-1023	2	2.5	2.75	2.5	2				1	2		
Introduction to Social Sciences	HSS-201			2			1.75	1.5	1.5	2	2	1.5	2
Physics – II	PHY-201	3	3	2.75	1.25	1				1			
Chemistry-II	CHM-201	2.2	1.75	2	1.5	1	1	2.33	1	1	2		1.75
Mathematics - II	MTH-201	2.4	1.8	2.6								1	
Machine Design	MEC-201	2.5	1	2.5	1				1.25	1			1
Computer Programming	CSE-201	2.7	2.33	2.5	3	1.75							2.5
Workshop Practice-II	WSP-2	3	1	2		1	3	2	1	3	1	2	2
Physics Lab-II	PHY-202P	3	3	2.75	2	2	1			1			
Chemistry Lab-II	CHM-201P	2.5	2	1.75			1.75	2			1.5	1.33	1.25
CSE Lab	CSE-202P	2	2.5	2.75	2.5	2				1	2		
Strength of Materials	CIV-201	3	3	1.8	1.8		2	1					
	<b>Average</b>	<b>2.6</b>	<b>2.2</b>	<b>2.3</b>	<b>2.1</b>	<b>1.8</b>	<b>1.6</b>	<b>1.9</b>	<b>1.2</b>	<b>1.6</b>	<b>1.8</b>	<b>1.7</b>	<b>1.7</b>

*Table B.8.4.1h*

**The syllabus based CO-PO mapping of all courses offered as per New Scheme from  
(Autumn 2019)**

1 <sup>st</sup> Semester (Group A)														
Electrical / Electronics & Comm. / Computer Science / Information Technology														
S. No.	Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	EEL100	Basic Electrical Engineering	2.66	1.6	1.5	2.5	1	1.25					2.25	1.4
2	HUL100	Basic English and Communication Skills						1			2	3	2	2
3	ITL100	Computer Programming	3	3	3		3						2	2
4	CYL100	Engineering Chemistry	2.25	2	2	1		1.5	2	1	1	2	2	2.25
5	CIP100	Engineering Drawing	3.0	3.0	3.0	3.0	2.0	2.0	2.0		3.0	3.0	2.0	2.0
6	MAL100	Mathematics I	2.4	1.8	2.6								1	
7	ELP100	Basic Electrical Engineering Laboratory	2.5	2.3		1.8		2.5	2				2.25	2.5
8	CYP100	Chemistry Laboratory	2.5	2	2.25	1		1.5	2	1	1	2	2	2.5
9	ITP100	Computer Programming Laboratory	3	3	3		3					2	2	2
10	MEL100	Elements of Mechanical Engg.	3	2	2							2		3
11	PHL100	Engineering Physics	3	3	3	2	2	2			2			
12	CIL100	Engineering Mechanics	3	2	2							2		3
13	HUL101	Advanced English Comm. Skills & Organizational Behavior						2			2	3	2	1
14	CYL101	Environmental Studies	2.75	2.5	3	0	1.75	2.75	3	0	0	2	1.5	2.25
15	MAL101	Mathematics II	2.4	1.8	2.6								1	1
16	HUP100	Language Laboratory									2	3	2	1
17	PHP100	Physics Laboratory	3	3	3	3	3	1			1			
18	WSP100	Work shop Practice	3	1	1		2	2	2	2	3	2		3
		Average	2.76	2.27	2.43	2.04	2.22	1.77	2.17	1.33	1.89	2.36	1.85	2.06

**Table B.8.4.1i**

**8.4.2. Record the attainment of Course Outcomes of all first year courses (5)**

Claimed 5

The Attainment Level of Course Outcomes of first year courses is determined using the procedure explained in previous section. The calculation table for direct and indirect attainment of COs for the sample course Paper Code: HSS-101 Autumn Semester (2017), 1st Semester (1st Year), B. Tech Civil Engineering; Subject: Communication Skills and Oral Presentation (HSS 101) is shown in the table given below:

**Determination of average correlated attainment of COs for the Sample Course**

S. No	Course Outcome	CO attainment	CO attainment	Overall 80% Direct + 20% Indirect
		(Direct Assessment)	(Indirect Assessment)	
1	CO1	2	2.43	2.08
2	CO2	2	2.53	2.10
3	CO3	2	2.50	2.1
4	CO4	2	2.48	2.09

*Table B.8.4.2a***Direct and Indirect Attainment of COs for the considered courses in 2017-18**

Course Name	Course Code	Level of Attainment	
		Direct	Indirect
Communication Skills and Oral Presentation	HSS-101	1.85	3
Physics-I	PHY-101	2.04	3
Chemistry-I	CHM-101	2.55	3
Mathematics-I	MTH-101	1.71	3
Engineering Drawing	CIV-102	1.64	3
Introduction to Social Sciences	HSS-201	2.4	3
Physics-II	PHY-201	1.54	3
Chemistry-II	CHM-201	2.68	3
Mathematics-II	MTH-201	2.0	3
Strength of Materials	CIV-201	1.91	3
Computer Fundamentals and Problem-Solving Techniques	IT-101	2.55	3
Workshop Practice-I	WSP-1	2.72	3
Physics Lab	PHY-102P	3.00	3
Chemistry Lab	CHM-101P	3.00	3
Computer Fundamental Lab	IT-1023	2.38	3
Machine Drawing	MEC-201	2.14	3
Computer Programming	Cse201	2.03	3
Workshop Practice-II	WSP-II	2.71	3
Physics Lab-II	PHY-202P	2.79	3
Chemistry Lab	CHM-201P	3.00	3
CSE Lab	CSE-202P	2.49	3

*Table B.8.4.2b***Direct and Indirect Attainment of COs for the considered courses in 2018-19**

Course Name	Course Code	Level of Attainment	
		Direct	Indirect
Communication Skills and Oral Presentation	HSS-101	2.53	3
Physics-I	PHY-101	1.00	3
Chemistry-I	CHM-101	2.49	3

Mathematics-I	MTH-101	2.10	3
Engineering Drawing	CIV-102	0.54	3
Introduction to Social Sciences	HSS-201	2.22	3
Physics-II	PHY-201	1.62	3
Chemistry-II	CHM-201	2.66	3
Mathematics-II	MTH-201	2.10	3
Strength of Materials	CIV-201	1.94	3
Computer Fundamentals and Problem-Solving Techniques	IT-101	2.55	3
Workshop Practice-I	WSP-1	2.75	3
Physics Lab	PHY-102P	2.77	3
Chemistry Lab	CHM-101P	3.00	3
Computer Fundamental Lab	IT-1023	2.36	3
Machine Drawing	MEC-201	1.36	3
Computer Programming	Computer	2.22	3
Workshop Practice-II	WSP-II	2.79	3
Physics Lab-II	PHY-202P	2.70	3
Chemistry Lab	CHM-201P	2.95	3
CSE Lab	CSE-202P	2.65	3

Table B.8.4.2c

#### Direct and Indirect Attainment of COs for the courses in 2019-2020

Course Name	Course Code	Level of Attainment	
		Direct	Indirect
Basic Electrical Engineering	EEL100	2.30	3
Basic English and Communication Skills	HUL100	2.76	3
Computer Programming	ITL100	2.20	3
Engineering Chemistry	CYL100	2.87	3
Engineering Drawing	CIP100	2.42	3
Mathematics I	MAL100	1.94	3
Basic Electrical Engineering Laboratory	ELP100	2.60	3
Chemistry Laboratory	CYP100	3.00	3
Computer Programming Laboratory	ITP100	2.90	3
Elements of Mechanical Engg.	MEL100	2.50	3
Engineering Physics	PHL100	3.00	3
Engineering Mechanics	CIL100	2.41	3
Advanced English Comm. Skills & Organizational Behavior	HUL101	2.68	3
Environmental Studies	CYL101	3.00	3
Mathematics II	MAL101	2.67	3
Language Laboratory	HUP100	2.08	3
Physics Laboratory	PHP100	3.00	3
Work shop Practice	WSP100	3.00	3

Table B.8.4.2d

**8.5. Attainment of Program Outcomes from first year courses (20)****Claimed 18**

Course Articulation Matrix with Correlation for the sample course HSS-101

Code	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
HSS-101.CO1	To exhibit effective reading and writing skills.									2	3	2	
HSS-101.CO2	To use grammatical elements correctly.									2	2	2	
HSS-101.CO3	To produce project reports with efficient technical writing skills.									2	3	3	
HSS-101.CO4	To give effective oral presentation in English.									3	2	2	
	Average Value									2.25	2.5	2.25	
	Correlation									3	3	3	

*Table B.8.5***8.5.1. Indicate results of evaluation of each relevant PO if applicable (10)****Claimed 10****8.5.1A Process of computing POs attainment level from the COs of related first year courses-**

All the courses offered during 1<sup>st</sup> year have strong correlation with most of the POs. The process of collection of data and their analysis has been explained in earlier sections. The syllabus based Program Articulation Matrix for the first year courses is shown in Table. The Direct and In-direct Attainment Levels of Program Outcomes are calculated by making use of the formula  $(\text{CO Attainment Level} \times \text{CO Correlation Level})/3$  and tabulated in Tables. The overall Attainment Levels of Program Outcomes are calculated by giving 80% weightage to Direct Attainment Levels of POs and 20% weightage to In-direct Attainment Level of POs, in other words, we used the formula  $(0.8 \times \text{Direct Attainment Level of POs} + 0.2 \times \text{In-Direct Attainment Level of POs})$ . The overall Attainment Levels of Program Outcomes are shown in Table

**Overall Attainment Levels of Program Outcomes for 1<sup>st</sup> year courses (2017-2018)**

Course Name	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Communication Skills & Oral Presentation	HSS-101									1.5	1.6	1.5	
Physics – I	PHY-101	2.02	2.02	1.8	0.89	1.71	0.68						
Chemistry-I	CHM-101	2	1.2			2.2	2	2			1	1.5	1.25
Mathematics - I	MTH-101101	1.4	1.3	1.5	0.6	0.7	0.6	0.6	0.4	0.6	0.4	0.8	0.5
Engineering Drawing	CIV-102	1.63	1.63	1.63	1.63	1.09	1.09	1.09		1.63	1.633	1.09	1.09

Computer Fundamentals and Problem-Solving Techniques	IT-101	2.23	1.09	0.37		0.85							1.73
Workshop Practice-I	WSP-1	2.70	0.90	0.90		1.80	1.80	1.80	1.80	2.70	1.80		2.70
Physics Lab	PHY-102P	2.4	2.4	2.2	1.6	1.6	0.8	0	0	0.8	0	0	0
Chemistry Lab-I	CHM-101P	2	1.6	1.4	0	0	1.4	1.6	0	0	1.2	1.064	1
Computer Fundamental Lab	IT-1023	1.62	0.94	1.14		1.79							1.59
Introduction to Social Sciences	HSS-201			0.35			1.16	0.98	0.95	0.95	0.29	0.38	0.35
Physics – II	PHY-201	1.54	1.54	1.29	0.6	0.51				0.52			
Chemistry-II	CHM-201												
Mathematics - II	MTH-201	1.87	1.53	1.82	0.56	0.76	0.4	0.6	0.4	0.6	0.4	0.84	0.54
Machine Design	MEC-201	1.650	0.373	1.788	0.548	0.88	0.4	0.6	0.9283	0.76	0.4	0.6	0.369
Computer Programming	CSE-201	1.79	1.8	1.95	1.32	1.61	0.57	0.57	0.6	0.71	0.586	0.63	1.85
Workshop Practice-II	WSP-2	2.64	0.88	0.88		1.76	1.76	1.76	1.76	2.64	1.76		2.64
Physics Lab-II	PHY-202P	2.4	2.4	2.2	1.6	1.6	0.8	0	0	0.8	0	0	0
Chemistry Lab-II	CHM-201P	2	1.6	1.4	0	0	1.4	1.6	0	0	1.2	1.06	1
CSE Lab	CSE-202P	1.84	2.21	2.15	1.33	2.03	0.58	0.58	0.57	0.95	0.62	0.64	2.12
Strength of Materials	CIV-201	2.16	2.16	1.28	1.36		1.44	0.84					
Average Attainment		1.99	1.53	1.45	1.09	1.39	1.06	1.12	0.93	1.17	0.99	0.92	1.34

Table B.8.5.1a

### Overall Attainment Levels of Program Outcomes for 1<sup>st</sup> year courses (2018-2019)

Course Name	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Communication Skills & Oral Presentation	HSS-101									1.88	2.15	1.93	
Physics – I	PHY-101	0.98	0.98	0.82	0.43	0.8	0.33						
Chemistry-I	CHM-101	2.3	1.2			2.2	2	2			1.3	1.8	1
Mathematics - I	MTH-101101	1.5	1.4	1.5	0.8	0.9	0.7	0.6	0.4	0.6	0.4	0.8	0.4
Engineering Drawing	CIV-102	0.91	0.91	0.91	0.91	0.61	0.61	0.61		0.91	0.85	0.61	0.61
Computer Fundamentals and Problem-Solving Techniques	IT-101	2.05	1.01	0.45		0.79							1.59
Workshop Practice-I	WSP-1	2.77	0.87	0.92		1.84	1.84	1.84	1.84	2.77	1.84		2.77
Physics Lab	PHY-102P	2.4	2.4	2.2	1.6	1.6	0.8	0	0	0.8	0	0	0
Chemistry Lab-I	CHM-101P	2	1.6	1.4	0	0	1.4	1.6	0	0	1.2	1.06	1
Computer Fundamental Lab	IT-1023	1.63	0.92	1.14		1.78							1.56
Introduction to Social Sciences	HSS-201			0.35			1.08	0.89	0.95	1.04	0.355	0.39	0.36

Physics – II	PHY-201	1.61	1.61	1.39	0.71	0.54				0.54			
Chemistry-II	CHM-201	1.8	1.4	1.6	1.2	0.8	0.8	1.86	0.8	0.8	1.6	0	1.4
Mathematics - II	MTH-201	1.93	1.58	1.84	0.7	0.88	0.4	0.6	0.4	0.6	0.4	0.81	0.5
Machine Design	MEC-201	1.3	0.3	1.3	0.4	0.9	0.4	0.6	0.7	0.9	0.4	0.6	0.3
Computer Programming	CSE-201	1.74	1.89	1.97	1.29	1.67	0.57	0.56	0.57	0.71	0.57	0.61	1.72
Workshop Practice-II	WSP-2	2.75	0.92	0.92		1.83	1.83	1.83	1.83	2.75	1.83		2.75
Physics Lab-II	PHY-202P	2.4	2.4	2.2	1.6	1.6	0.8	0	0	0.8	0	0	0
Chemistry Lab-II	CHM-201P	2	1.6	1.4	0	0	1.4	1.6	0	0	1.2	1.06	1
CSE Lab	CSE-202P	1.99	2.27	2.27	1.43	2.09	0.61	0.59	0.57	0.94	0.63	0.64	2.15
Strength of Materials	CIV-201	2.19	2.19	1.3	1.37		1.45	0.85					
Average Attainment													

Table B.8.5.1b

Overall Attainment Levels of Program Outcomes for 1<sup>st</sup> year courses (2019-2020)

S. No.	Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1.	EEL100	Basic Electrical Engineering	2.11	1.35	1.20	1.30	0.28	0.65					1.14	0.99
2.	HUL100	Basic English and Communication Skills						0.9			1.54	2.66	1.33	1.11
3.	ITL100	Computer Programming	0.75	2.2	2.3		2.3						1.5	1.5
4.	CYL100	Engineering Chemistry	1.96	1.95	1.94	0.82		1.23	1.79	0.97	0.82	1.37	1.63	2.11
5.	CIP100	Engineering Drawing	2.5	2.5	2.5	2.5	2.19	1.66	1.66	2.8	2.5	2.25	1.66	1.66
6.	MAL100	Mathematics I	1.22	1.08	1.27								0.35	
7.	ELP100	Basic Electrical Engineering Laboratory	2.3	2.16		1.625		2.41	1.91				2.16	
8.	CYP100	Chemistry Laboratory	2.15	1.98	2.04	0.81		1.33	1.98	0.81	0.81	1.54	1.75	2.29
9.	ITP100	Computer Programming Laboratory	2.2	2.1	2.1		2.2					1.6	1.6	1.5
10.	MEL100	Elements of Mechanical Engg.	2.45	1.63	1.75							1.63		2.45
11.	PHL100	Engineering Physics	2.9	2.838	2.713	1.3	1.1375	1.05			1			
12.	CIL100	Engineering Mechanics	2.26	2.22	1.36	1.64		1.29	0.64			1.91		2.77
13.	CYL101	Environmental Studies	2.67	2.42	2.91	0	1.69	2.66	2.91	0	0	1.94	1.45	2.27
14.	HUP100	Language Laboratory									0.99	2.13	1.01	0.67
15.	PHP100	Physics Laboratory	3	2.975	2.75	2.125	2.025	1			1			
16.	WSP100	Work shop Practice	2.92	0.97	0.97		1.94	1.94	1.94	1.94	2.92	1.94		2.92
17.	HUL101	Advanced English Comm. Skills & Organizational Behavior						1.2			1.43	2.63	1.27	0.96
18.	MAL101	Mathematics II	2.36	1.80	2.26								0.63	0.60

Table B.8.5.1c

## 8.5.2. Actions taken based on the results of evaluation of relevant POs (10)

Claimed 8

Academic Year : CAYm1 (2019-20)			
Attainment is set to be achieved if it is 70% CO-PO mapping (Target level).			
POs	Target Level (70%)	Attainment Level	Observations
PO1:	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.		
PO1	1.93	2.25	<i>Set target is achieved</i>
Action1: To organize practical classes to improve understanding of basic sciences Action2: To display animated videos on engineering fundamentals			
PO2:	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.		
PO2	1.6	2.01	<i>Set target is not achieved</i>
Action1: To write review of sample papers on basic and engineering sciences Action2: To give more tutorial problems to improve understanding of subjects			
PO3:	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.		
PO3	1.7	2	<i>Set target is not achieved</i>
Action1: The students are encouraged to participate in social and cultural activities Action2: To provide more practice of complex engineering problems Action3: To organize visits to industry to get familiar with engineering problems and solutions			
PO4:	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.		
PO4	1.43	1.35	<i>Set target is not achieved</i>
Action1: Assigned some extra problems to students and asked them to solve in tutorial class to facilitate deeper understanding of the subject. Action2: Encouraged to participate in seminars and presentations. Action3: Enhanced the visualization capabilities through pictures, prototypes and tools.			
PO5:	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with a understanding of the limitations.		
PO5	1.55	1.72	<i>Set target is achieved</i>
Action1: To conduct virtual classes and use ICT tools in classroom teachings Action2: Students are encouraged to use simulation software to understand modeling of problems			
PO6:	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.		

PO6	1.24	1.44	<i>Set target is achieved</i>
Action1: Students are encouraged to participate in cultural and societal activities			
Action2: To motivate the students to join different activities on societal and health issues			
PO7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.			
PO7	1.52	1.83	<i>Set target is achieved</i>
Action1: Students are exposed to the concept of sustainable development			
PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	0.93	1.3	<i>Set target is achieved</i>
Action1: Students are motivated to understand and follow the professional ethics			
PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.32	1.3	<i>Set target is achieved</i>
Action1: Students are encouraged to participate in group activities as member or leader.			
PO10: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.65	1.96	<i>Set target is not achieved</i>
Action1: Seminars are organized and presentations are made using audio-visual tools.			
Action2: Students were asked write report on certain topics in science and humanities.			
Action3: Enhanced the visualization capabilities through pictures, prototypes and tools.			
PO11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.			
PO11	1.29	1.34	<i>Set target is not achieved</i>
Action1: Team works are organized, students participated as a member or team leader			
Action2: Assigned projects and presentations in the field of science and humanities			
PO12: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.45	1.72	<i>Set target is not achieved</i>
Action1: The students are motivated to educate themselves about changing technological environment			

**Table B.8.5.2**

**SUMMARY:**

<b>Sub-criterion</b>	<b>Max. Score</b>	<b>Obtained/Claimed Score</b>
8.1	5	5
8.2	5	4.76
8.3	10	5.7
8.4	10	10
8.5	20	18
<b>Total</b>	<b>50</b>	<b>43.46</b>

**Marks claimed: 43.46 out of 50**