CRITERION 8	First Year Academics	50

Institute Marks:

CRITERION 8	First Year Academics	41.58

8.1. First Year Student Faculty Ratio (FYSFR) M.M.: 5

Data for first year courses to calculate the FYSFR: Institute Marks: 4.93

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

Year	Number of Students (actual intake, N)	Number of Faculty Members (F)	FYSFR	Assessment = (5×20)/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
Average	**783**	**44**	**17.3**	**5**

8.2. Qualification of Faculty Teaching First Year Common Courses (5) M.M.: 5

Institute Marks: 4.45

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 of the Faculty members (X) are doctorates, however, few of the Faculty members (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 (5*X*+3*Y*)/*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*
Average Assessment				**4.76**

8.3. First Year Academic Performance (10) M.M.:10

Institute Marks: 5.2

Academic Performance Index (API)= *(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) ×(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 1st Year Grade Point Average (GPA) of all the successful Students on a 10-point scale (G), is taken as an average of the mean of Student Performance Index (SPI) for Semester-I and Semester-II, of all the successful Students promoted to 2nd 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	

8.4. Attainment of Course Outcomes of first year courses M.M.: 10

Institute Marks: 9

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

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 1st 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 a course exit survey. The Internal Assessment (including assignments and one mid-term examination) contributes to 40% and the 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, the assignment (of 10 marks) is used to assess attainment of CO3. The questions of the end-semester examination (of 60 marks) are equally distributed to attain all the five COs of the course. However, teachers are free to use their methods to determine the attainment of COs using a different distribution of marks.

When the students admitted to the first year of B. Tech Programme, they are grouped into Eight Sections based on eight engineering branches. 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. 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 into three groups and assigned different weightage.

Attainment Levels:

(For Theory Subjects)

For Academic Year 2018-2019 & 2019-20

50% of students scoring more than the benchmark (50%) ---Level-1
60% of students scoring more than the benchmark (50%) ---Level-2
70% of students scoring more than the benchmark (50%) ---Level-3

For Academic Year 2017-2018

50% of students scoring more than the benchmark (40%) ---Level-1
60% of students scoring more than the benchmark (40%) ---Level-2
75% of students scoring more than the benchmark (40%) ---Level-3

(For Laboratory Subjects)

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

60% of students scoring more than the benchmark (50%) ---Level-1
70% of students scoring more than the benchmark (50%) ---Level-2
80% of students scoring more than the benchmark (50%) ---Level-3

Course Structure of B. Tech. 1st Year (Schema till Spring 2018)

1st 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

2st 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

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

1st 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	Chemistry	4	3	1	0	4
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
		Total		25	14	5	12	31

1st 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	Workshop Practice	Workshop	2	0	0	5	5
		Total		25	15	6	9	30

2nd 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	Workshop Practice	Workshop	2	0	0	5	5
		Total		25	15	6	8	30

2nd 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
		Total		25	14	5	12	31

Course Outcomes (COs) are defined for each course by the concerned teachers and approved by the DUGC of the department. The Course Outcomes are displayed on notice boards and also explained to the students by the concerned teachers at the beginning of the course. The COs of each (theory and lab) course 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) is shown in Table

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 an effective oral presentation in English.									3	2	2	
	Average Value									**2.25**	**2.5**	**2.25**	

The syllabus based CO-PO mapping of all courses offered during first year are shown below

The Program Articulation Matrix for the first year courses

Course Name	Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO	PO9	PO1	PO11	PO12
Communication Skills & Oral Presentation	HSS-101									2.25	2.5	2.25	
Physics – I	PHY-101	3	2.75	2.5	1.25	1.5							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	1.5	1.75		3	3	3	2
Computer Fundamentals and Problem-Solving Techniques	IT-101	2.5	3	1		2							2
Workshop Practice-I	WSP-1	3	1	1		2	2	2	2	3	2		3
Physics Lab	PHY-102P	3	3	3	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	2.75	2.5	1.25	1.5							1
Chemistry-II	CHM-201	2.3	1.8	2.3	1.0	1.7	1.0	2.7	1.0	1.0	2.0		1.8
Mathematics - II	MTH-201	2.4	1.8	2.6								1	
Machine Drawing	MEC-201	2.5	1	2.5	1				1.25	1			1
Computer Programming	CSE-201	2.75	2.33	2.5	3	1.75							2.5
Workshop Practice-II	WSP-2	3	1	1		2	2	2	2	3	2		3
Physics Lab-II	PHY-202P	3	3	3	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	2.5	2.5	2.75	2.33	2.5				1			3
Strength of Materials	CIV-201	3	3	2.2	2.2		2	1					
Average Attainment		**2.7**	**2.2**	**2.3**	**2.0**	**2.0**	**1.6**	**1.9**	**1.6**	**1.7**	**1.9**	**1.7**	**1.9**

The syllabus based CO-PO mapping of all courses offered as per New Scheme

1st Semester (Group A) Electrical / Electronics & Comm. / Computer Science / Information Technology													
S. No.	Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PO8	PO9	PO10	PO11	PO12
1	EEL100	Basic Electrical Engineering	2.8	1.8	1.6	2.6	1.5						2.3	1.4
2	HUL100	Basic English and Communication Skills						2			2.3	3	2	2.5
3	ITL100	Computer Programming	1.8	3	3	2								2.6
4	CYL100	Engineering Chemistry	2.25	2	2	1		1.5	2	1	1	2	2	2.25
5	CIP100	Engineering Drawing	3	3	3	3	2	2	2		3	3	2	2
6	MAL100	Mathematics I	2.4	1.8	2.6								1	
7	ELP100	Basic Electrical Engineering Laboratory	2	1.25	1.6	1.7								1.5
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		2				1			3
10	MEL100	Elements of Mechanical Engg.	3	2	2							2		3
11	PHL100	Engineering Physics	3	3	3	2.8	2.6							
12	CIL100	Engineering Mechanics	3	3	1.8	1.8		2	1					
13	HUL101	Advanced English Comm. Skills & Organizational Behavior						2.5			2.33	3	2	2
14	CYL101	Environmental Studies	2.75	2.5	3		1.75	2.75	3			2	1.5	2.25
15	MAL101	Mathematics II	2.4	1.8	2.6								1	1
16	HUP100	Language Laboratory									3	3	3	2
17	PHP100	Physics Laboratory	3	3	3	3	3	1			1			
18	WSP100	Workshop Practice	3	1	1		2	2	2	2	3	2		3
		Average	2.66	2.28	2.36	2.1	2.12	1.92	2	1.33	2.08	2.44	1.88	2.15

8.4.2. Record the attainment of Course Outcomes of all first year courses

The Attainment Level of Course Outcomes of first year courses is determined using the procedure explained in the 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 (Direct Assessment)	CO attainment (Indirect Assessment)	Overall 80% Direct + 20% Indirect
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

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	3
Chemistry Lab	CHM-101P	3	3
Computer Fundamental Lab	IT-1023	2.38	3
Machine Drawing	MEC-201	2.14	3
Computer Programming	Cse201 Programming	2.03	3
Workshop Practice-II	WSP-II	2.71	3
Physics Lab-II	PHY-202P	2.79	3
Chemistry Lab	CHM-201P	3	3
CSE Lab	CSE-202P	2.49	3

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	3
Chemistry-I	CHM-101	2.49	3
Mathematics-I	MTH-101	2.1	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	2.1	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	3
Computer Fundamental Lab	IT-1023	2.36	3
Machine Drawing	MEC-201	1.36	3
Computer Programming	Computer Programming	2.22	3
Workshop Practice-II	WSP-II	2.79	3
Physics Lab-II	PHY-202P	2.7	3
Chemistry Lab	CHM-201P	2.95	3
CSE Lab	CSE-202P	2.65	3

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

S. No.	Course Code	Course Title	Level of Attainment	
			Direct	Indirect
1	EEL100	Basic Electrical Engineering	2.3	3
2	HUL100	Basic English and Communication Skills	2.76	3
3	ITL100	Computer Programming	2.2	3
4	CYL100	Engineering Chemistry	2.87	3
5	CIP100	Engineering Drawing	2.42	3
6	MAL100	Mathematics I	1.94	3
7	ELP100	Basic Electrical Engineering Laboratory	2.6	3

8	CYP100	Chemistry Laboratory	3	3
9	ITP100	Computer Programming Laboratory	2.9	3
10	MEL100	Elements of Mechanical Engg.	2.5	3
11	PHL100	Engineering Physics	3	3
12	CIL100	Engineering Mechanics	2.41	3
13	HUL101	Advanced English Comm. Skills & Organizational Behavior	2.68	3
14	CYL101	Environmental Studies	3	3
15	MAL101	Mathematics II	2.67	3
16	HUP100	Language Laboratory	2.08	3
17	PHP100	Physics Laboratory	3	3
18	WSP100	Workshop Practice	3	3

8.5. Attainment of Program Outcomes from first year courses M.M.: 20
Institute Mark: 18

8.5.1A Process of computing POs attainment level from the COs of related first year courses

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	

8.5.1. Indicate results of the evaluation of each relevant PO if applicable M.M.: 10
Institute Marks: 10

8.5.1A Process of Computing POs attainment level from the COs of related 1st year courses

All the courses offered during 1st year have a 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 (CO Attainment Level×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×Direct Attainment Level of POs+0.2×In-Direct Attainment Level of POs). The overall Attainment Levels of Program Outcomes in each evaluation year are shown in the tables below:

Overall Attainment Levels of Program Outcomes for 1st year courses (2017-18)

Course Name	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	PO1	PO12
Communication Skills & Oral Presentation	HSS-101									1.53	1.69	1.51	
Physics – I	PHY-	1.87	1.73	1.53	0.80	0.91							0.616
Chemistry-I	CHM-101	2.08	1.75			1.5	1.2	1.7			1.68	1.7	1.7
Mathematics - I	MTH-101101	1.57	1.22	1.59								0.64	
Engineering Drawing	CIV-	2.12	2.12	2.12	2.02	1.38	1.38	1.39	1.32	2.07	2.15	1.74	1.46
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	2.704	1.80		2.704
Physics Lab	PHY-	2.4	2.4	2.2	1.6	1.6	0.8			0.8			
Chemistry Lab-I	CHM-	2	1.6	1.4			1.4	1.6			1.2	1.06	1
Computer Fundamental Lab	IT-1023	1.62	0.94	1.14		1.79							1.59
Introduction to Social Sciences	HSS-201			0.9775			1.1275	0.9225	0.9225	1.18625	0.975	0.64375	0.9775
Physics – II	PHY-	2.32	2.18	1.96	0.99	1.18							0.772
Chemistry-II	CHM-	2.03	1.56	2.04	0.83	1.34	0.82	2.11	0.81	0.808	1.68		1.59
Mathematics - II	MTH-201	1.57	1.20	1.69								0.64	

Machine Design	MEC-	1.650	0.373	1.788	0.54	0.88	0.4	0.6	0.92	0.768	0.4	0.6	0.369
Computer Programming	CSE-	1.79	1.8	1.95	1.32	1.61	0.57	0.57	0.6	0.71	0.58	0.63	1.85
Workshop Practice-II	WSP-2	2.64	0.88	0.88		1.76	1.76	1.76	1.76	2.647	1.76		2.647
Physics Lab-II	PHY-	2.5	2.3	2	1.8	1.7	0.9			0.8			
Chemistry Lab-II	CHM-	2	1.6	1.4			1.4	1.6			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-	2.16	2.16	1.28	1.36		1.44	0.84					
Average Attainment		**2.06**	**1.58**	**1.55**	**1.26**	**1.45**	**1.11**	**1.29**	**1.09**	**1.34**	**1.28**	**0.94**	**1.48**

Overall Attainment Levels of Program Outcomes for 1st year courses (2018-19)

Course Name	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1	PO12
Communication Skills & Oral Presentation	HSS-101									1.88	2.15	1.93	
Physics – I	PHY-	1.93	1.79	1.587	0.80	0.94							0.63
Chemistry-I	CHM-101	2.26	1.82			1.74	1.43	1.58			1.49	1.78	1.88
Mathematics - I	MTH-101101	1.64	1.25	1.64								0.67	
Engineering Drawing	CIV-	0.91	0.91	0.91	0.91	0.61	0.61	0.61		0.91	0.85	0.6	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	2.73	0.909	0.909		1.82	1.82	1.82	1.82	2.73	1.82		2.73
Physics Lab	PHY-	2.4	2.4	2.2	1.6	1.6	0.8			0.8			
Chemistry Lab-I	CHM-	2	1.6	1.4			1.4	1.6			1.2	1.0	1
Computer Fundamental Lab	IT-1023	1.63	0.92	1.14		1.78							1.56
Introduction to Social Sciences	HSS-201			1.2			1.4	1.25	1.25	1.4	0.95	0.8	1.23
Physics – II	PHY-	1.77	1.716	1.506	0.80	0.91							0.59
Chemistry-II	CHM-	1.8	1.4	1.6	1.2	0.8	0.8	1.86	0.8	0.8	1.6		1.4
Mathematics - II	MTH-201	1.69	1.26	1.82								0.65	
Machine Design	MEC-	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-	1.74	1.89	1.97	1.29	1.67	0.57	0.56	0.57	0.71	0.57	0.6	1.72
Workshop Practice-II	WSP-2	2.74	0.915	0.915		1.83	1.83	1.83	1.83	2.74	1.83		2.74
Physics Lab-II	PHY-	2.3	2.5	2.3	1.65	1.6	0.7			0.7			
Chemistry Lab-II	CHM-	2	1.6	1.4			1.4	1.6			1.2	1.0	1
CSE Lab	CSE-	1.99	2.27	2.27	1.43	2.09	0.61	0.59	0.57	0.94	0.63	0.6	2.15
Strength of Materials	CIV-	2.19	2.19	1.3	1.37		1.45	0.85					
Average Attainment		**1.95**	**1.51**	**1.46**	**1.15**	**1.36**	**1.09**	**1.23**	**1.08**	**1.26**	**1.14**	**0.8**	**1.41**

Overall Attainment Levels of Program Outcomes for 1st year courses (2019-20)

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	1.76	2.01	1.83	0.81		1.13	1.79	0.81	0.81	1.72	1.56	2.02
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	1.31	1	1.26								0.56	
7.	ELP100	Basic Electrical Engineering Laboratory	2.3	2.16		1.625		2.41	1.91				2.16	
8.	CYP100	Chemistry Laboratory	2.44	1.95	2.56	0.89		1.46	1.91	0.96	0.95	1.94	1.96	2.45
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	2.5	2.3	1.2	1.3							
12.	CIL100	Engineering Mechanics	2.26	2.22	1.36	1.64		1.29	0.64			1.91		2.77
13.	CYL101	Environmental Studies	2.68	2.43	2.92		1.71	2.68	2.92			1.95	1.47	2.19
14.	HUP100	Language Laboratory									2.59	2.13	2.02	1.35
15.	PHP100	Physics Laboratory	3	2.975	2.75	2.125	2.025	1			1			
16.	WSP100	Work shop Practice	2.90	0.97	0.97		1.93	1.93	1.93	1.93	2.90	1.93		2.90
17.	HUL101	Advanced English Comm. Skills & Organizational Behavior						2.39			1.9	2.63	1.69	1.91
18.	MAL101	Mathematics II	2.34	1.8	2.28								0.77	
	Average Attainment		2.26	1.99	2.01	1.51	1.74	1.59	1.82	1.63	1.77	2.03	1.49	1.95

8.5.2. Actions taken based on the results of evaluation of relevant POs M.M.: 10

Institute Marks:10

Pos Attainment Levels and Actions for improvement

Attainment is set to be achieved if it is 90% of the target level.

NIT Srinagar is committed to be a pioneer technical educational institute and the first step towards excellence is to beat your own records. At NIT Srinagar, irrespective of whether we achieve the target attainment level or not, we provide valuable feedback to the departments and

the faculty members to outdo their previous best, while action is taken to outrank the previous attainment levels so that the Institute can soar to new heights.

2017-18			
POs	Target Level (60%)	Attainment Level	Observations
PO1:	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.		
PO1	1.62	2.06	*Set target is achieved*
Action1: Faculty members are encouraged to improve understanding of basic sciences among students using modern ICT tools e.g., 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	1.32	1.58	*Set target is achieved*
Action1: To write reviews 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 public health and safety, and the cultural, societal, and environmental considerations.		
PO3	1.38	1.55	*Set target is achieved*
Action1: The students are encouraged to participate in social and cultural activities Action2: 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	1.2	1.26	*Set target is achieved*
Action1: Assign extra problems to students and asked them to solve them in tutorial class to facilitate a deeper understanding of the subject. Action2: Encourageto participate in seminars and presentations.			
PO5:	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.		

PO5	1.2	1.45	*Set target is achieved*
Action1: Conduct virtual classes and use ICT tools in classroom teachings Action2: Students are encouraged to use simulation software to understand the 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	0.96	1.11	*Set target is achieved*
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	1.14	1.29	*Set target is achieved*
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	0.96	1.09	*Set target is achieved*
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 multidisciplinary settings.			
PO9	1.02	1.34	*Set target is achieved*
Action1: Students are encouraged to participate in group activities as members or leaders.			
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	1.14	1.28	*Set target is achieved*
Action1: Seminars are organized and presentations are made using audio-visual tools. Action2: Students were asked to write a report on certain topics in science and humanities. Action3: Enhanced the visualization capabilities through pictures, prototypes, and tools.			
PO11: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			

PO11	1.02	0.94	*Set target is not achieved*
Action1: Team works are organized, students participated as a member or a 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	1.14	1.48	*Set target is achieved*
Action1: The students are motivated to educate themselves about changing technological environment.			

2018-19			
POs	Target Level (65%)	Attainment Level	Observations
PO1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	1.76	1.95	*Set target is achieved*
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	1.43	1.51	*Set target is achieved*
Action1: To encourage the students for reviewing the existing literature and writing the review of various research papers on the fundamentals of engineering sciences. Action2: To inculcate more practical knowledge of these subjects among the students by involving them equally in numerical sessions.			
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	1.5	1.46	*Set target is not achieved*
Action1: The students are trained for solving various complex engineering problems and are provided an importance of the same in today's competitive world. Action2: To organize various engineering fests and cultural events to make the students aware about the cultural and social importance of those events.			
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	1.30	1.15	*Set target is not achieved*
Action1: Create an enthusiasm among the students for research and encourage them to develop efficient solutions from the various experiments conducted in laboratories. Action2: Facilitate the students to write worthy research reports by encouraging them to have creative interpretation of the analytical results.			
PO5: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.30	1.36	*Set target is achieved*
Action1: Create a virtual environment for inculcating various engineering concepts and techniques among the students. Action2: Students are encouraged to create various prototypes for a better understanding of the 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	1.04	1.04	*Set target is achieved*
Action1: Students are made to understand the relevance and importance of social, cultural and hygiene perspective in their professional life. Action2: To arrange and participate in various societal, cultural and health awareness programmes.			
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	1.24	1.231	*Set target is not achieved*
Action1: Students are encouraged to make the use of engineering knowledge in various environmental, cultural, and social issues so as to reap the benefits of sustainable development.			
PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.04	1.08	*Set target is not achieved*
Action1: Students are taught the importance and relevance of ethics in their profession. They are taught and motivated to follow the ethics in their professional life.			
PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.11	1.26	*Set target is achieved*
Action1: Students are motivated to arrange various management events concerning leadership			

	skills and problem-solving techniques.		
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	1.24	1.14	*Set target is not achieved*
Action1: To conduct various lively engineering fests and encourage the students to present their ideas concerning various engineering issues. Action2: To motivate the students to write excellent research reports by inculcating efficient writing skills in them.			
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	1.11	0.86	*Set target is not achieved*
Action1: To develop managerial and problem solving skills and team spirit among the students by teaching relevant management subjects along with the engineering curriculum.			
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	1.24	1.41	*Set target is achieved*
Action1: To create awareness among the students about technology, its importance and its dynamic nature.			

2019-20			
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	1.86	2.25	*Set target is achieved*
Action1: To organize lectures (both online and offline) by renowned scientists explaining basic sciences to students. Action2: To explain and discuss real life examples where engineering fundamentals have been used for solving complex problems.			
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	*Set target is achieved*
Action1: To write reviews of famous books on basic and engineering sciences.			

Action2: To give more home assignments for the purpose of enhancing an understanding of the subjects.			
PO3: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.65	2.01	*Set target is achieved*
Action1: The students are prompted to organize seminars and workshops to better understand engineering problems and provide appropriate solutions. Action2: To provide alternate solutions to various engineering problems.			
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	1.47	1.51	*Set target is achieved*
Action1: Performed extra activities with students for a better and deeper understanding of the subject. Action2: Students gave power-point presentations on selected research papers for better synthesis and critical analysis of the information provided.			
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	1.48	1.72	*Set target is achieved*
Action1: Students are prompted to attend virtual sessions of leading universities and technical institutions on complex problems faced by the world and their prospective solutions. Action2:Students are encouraged to use design thinking approach for providing alternate solutions to the selected engineering 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	1.34	1.59	*Set target is achieved*
Action1: Students are encouraged to critically analyse classroom lectures and reading material and not just be passive recipients of information.			
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	1.4	1.83	*Set target is achieved*

Action1: To provide an understanding of how sustainable development is the need of the hour. Action2: To inform students about practical approaches for achieving sustainable development while solving critical engineering problems.			
PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	0.93	1.63	*Set target is achieved*
Action1: To make students aware of how they can solve major problems using various engineering approaches but at the same time being ethically, morally, and socially responsible.			
PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	1.46	1.77	*Set target is achieved*
Action1: Students are made aware of how crucial it is to work in a team and how to ensure that while doing so, both individual and team goals are met.			
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	1.71	2.03	*Set target is achieved*
Action1: Students were asked to visit some local area, identify engineering problems they face, propose solutions, and document the same as a research report. Action2: Students were asked to give group power-point presentation for further assessment of the project undertaken.			
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 multidisciplinary environments.			
PO11	1.32	1.49	*Set target is achieved*
Action1: Students are given semester-long group projects and are assessed on the basis of their individual and team performance metrics. Action2: Students are to discuss real-life case studies of how management has helped successful engineers in solving critical and complex engineering problems.			
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	1.51	1.95	*Set target is achieved*
Action1: The students are prompted to learn various advances in technology and how they are			

	required to stay employable in the present-day dynamic and competitive global environment.
Action2:	The students are to take some recent technological advancements and explain in a presentation how they have revolutionized the world.