

# **Mohan Lal Sukhadia University Udaipur**



## **B. Tech. Program** **(Effective from session 2021-2022)** **(Effective from session 2022-2023)**

**Guidelines under CBCS Scheme**

## The guidelines for B.Tech. (4 Yr. Program) under CBCS scheme

### 1. Definition of Credit:

Table: 1.1

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week	0.5 credits

### 2. General rules for Credits:

- (i) Total 170 credits will be required to earn by a student to be eligible to get Undergraduate Degree in Engineering & Technology.
- (ii) Total 128 credits will be required for a student to be eligible to get Undergraduate Degree in Engineering & Technology admitted through Lateral Entry.
- (iii) The structure of the degree will be as follows:

Table: 2.1

Degree	Required Credits
B. Tech.	170*
B. Tech. (Honours)	128**

\* For lateral entry students 128 credits

\*\* Total credit multiply by 75% ( $170 \times 75\%$ )

### 3. Structure of Undergraduate Engineering & Technology Program (B. Tech.):

Table: 3.1

S. No.	Category	Abbreviation	Break up of Credits
1	Humanities and Social Sciences including Management courses	HSMC	10
2	Basic Science courses	BSC	23
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	ESC	27
4	Professional core courses	PCC	88
5	Professional Elective courses relevant to chosen specialization/branch	PEC	

6	Open subjects — Electives from other technical and /or emerging subjects	OE	6
7	Project work, seminar and internship in industry or elsewhere	PSIT	16
<b>Total credits required for award of B. Tech. Degree</b>			<b>170</b>

#### 4. Definition of Course Code:

< BT > < N1 > < XX > < N2 > < — > < YY > < N3 >

- (i) BT: Program Code
- (ii) N1: "Semester Code" in numeric single digit, i.e. 1 to 8.
- (iii) XX: "Branch Code" in two digit alphabets as per the following: **Table: 4.1**

SN	UG-Branch	Code (XX)
1	First Year	FY
2	Civil Engineering	CE
3	Computer Science & Engineering	CS
4	Electronics & Communication Engineering	EC
5	Electrical Engineering	EE
6	Mechanical Engineering	ME

- (iv) N2: "Course Code" in numeric double digit, i.e. 01 to 20
- (v) < — >: Symbol dash.
- (vi) YY: CT or CP; CT is Credit Theory and CP is Credit Practical
- (vii) N3: "Subject Code" in numeric double digit, i.e. 01 to 10

#### 5. Semester wise credit system:

**Table: 5.1**

Sr. No.	Semester	Total Credit
1	I	21
2	II	21
3	III	24/25
4	IV	25/24
5	V	24/25
6	VI	25/24
7	VII	15
8	VIII	15
<b>Total</b>		170

#### 6. Mandatory Trainings:

**Table: 6.1**

S. No.	Duration of Training	Mode of Training	After	Exam Semester	Credit
1	15 Days	In-house/ Industry	I Year (II Semester)	III	1*
2	45 Days	In-house/ Industry	II Year (IV Semester)	V	3

3	45 Days	Industry only	III Year (VI Semester)	VII	3
Total					7

Dates of Training shall be notified in University's academic calendar.

\*The Lateral Entry students may complete their Soft skill part time training, which will be decided at Institute level during III semester.

Distribution of Project/Seminar/Industrial Training (PSIT):

**Table: 6.2**

PSIT**	Credits			Total Credit
	Project	Seminar	Training	
	7	2	7	16

\*\*Teaching load of 1/2/3 Hrs. may be considered for Industrial Training/Seminar/Project in the respective semesters.

## 7. Distribution of number of Theory and Practical Courses in each semester.

I to VI Semesters:

**Table: 7.1**

Category	Total Number of papers
Theory	5-8
Practical	3-5

VII

Semester:**Table:**  
**7.2**

Category	Total Number of papers
Theory	2-3
Practical	3-4

VIII

Semester:**Table:**  
**7.3**

Category	Total Number of papers
Theory	2-3
Practical	2

## 8.I Semester (First Year): Common to all branches of UG Engineering & Technology

**Table: 8.1**

S. No.	Category	Credit
1	Theory	14
2	Practical	7
Total		21

**Table: 8.2**  
**Semester I**

SN	Category	Course Code	Course Title	Credit				Contact Hours				Max. Marks		
				Total	L	T	P	Total	L	T	P	IA	ETE	Total
1	BSC	BT1FY01-CT01	Engineering Mathematics-I	4	3	1	0	4	3	1	-	40	160	200
2	BSC	BT1FY02-CT02/	Engineering Physics/	4	3	1	0	4	3	1	-	40	160	200
		BT1FY03-CT03	Engineering Chemistry											
3	HSMC	BT1FY04-CT04/	Communication Skills/	2	2	0	0	2	2	-	-	20	80	100
		BT1FY05-CT05	Human Values											
4	ESC	BT1FY06-CT06/	Programming for Problem Solving/	2	2	0	0	2	2	-	-	20	80	100
		BT1FY07-CT07	Basic Mechanical Engineering											
5	ESC	BT1FY08-CT08/	Basic Electrical Engineering/	2	2	0	0	2	2	-	-	20	80	100
		BT1FY09-CT09	Basic Civil Engineering											
6	BSC	BT1FY10-CP01/	Engineering Physics Lab/	1	0	0	1	2	-	-	2	20	30	50
		BT1FY11-CP02	Engineering Chemistry Lab											
7	HSMC	BT1FY12-CP03/	Language Lab/	1	0	0	1	2	-	-	2	20	30	50
		BT1FY13-CP04	Human Values Activities and Sports											
8	ESC	BT1FY14-CP05/	Computer Programming Lab/	2	0	0	2	4	-	-	4	40	60	100
		BT1FY15-CP06	Manufacturing Practices Workshop											
9	ESC	BT1FY16-CP07/	Basic Electrical Engineering Lab/	1	0	0	1	2	-	-	2	20	30	50
		BT1FY17-CP08	Basic Civil Engineering Lab											
10	ESC	BT1FY18-CP09	Computer Aided Engineering Graphics/	2	0	0	2	4	-	-	4	40	60	100
		BT1FY19-CP10	Computer Aided Machine Drawing											
<b>Total</b>				<b>21</b>	<b>12</b>	<b>2</b>	<b>7</b>	<b>28</b>	<b>12</b>	<b>2</b>	<b>14</b>	<b>280</b>	<b>770</b>	<b>1050</b>

L = Lecture, T = Tutorial,  
P = Practical, IA=Internal Assessment, ETE=End Term  
Exam, Cr=Credits

## 9. II Semester (First Year): Common to all branches of UG Engineering & Technology

**Table: 9.1**

S. No.	Category	Credit
1	Theory	14
2	Practical	7
Total		21

**Table: 9.2**

### Semester II

SN	Category	Course Code	Course Title	Credit				Contact Hours				Max. Marks		
				Total	L	T	P	Total	L	T	P	IA	ETE	Total
1	BSC	BT2FY01-CT01	Engineering Mathematics-II	4	3	1	0	4	3	1	-	40	160	200
2	BSC	BT2FY03-CT03	Engineering Chemistry/	4	3	1	0	4	3	1	-	40	160	200
		BT2FY02-CT02	Engineering Physics											
3	HSMC	BT2FY05-CT05/	Human Values/	2	2	0	0	2	2	-	-	20	80	100
		BT2FY04-CT04	Communication Skills											
4	ESC	BT2FY07-CT07/	Basic Mechanical Engineering	2	2	0	0	2	2	-	-	20	80	100
		BT2FY06-CT06	Programming for Problem Solving											
5	ESC	BT2FY09-CT09	Basic Civil Engineering	2	2	0	0	2	2	-	-	20	80	100
		BT2FY08-CT08	Basic Electrical Engineering/											
6	BSC	BT2FY11-CP02	Engineering Chemistry Lab	1	0	0	1	2	-	-	2	20	30	50
		BT2FY10-CP01/	Engineering Physics Lab/											
7	HSMC	BT2FY13-CP04	Human Values Activities and Sports	1	0	0	1	2	-	-	2	20	30	50
		BT2FY12-CP03/	Language Lab/											
8	ESC	BT2FY15-CP06	Manufacturing Practices Workshop	2	0	0	2	4	-	-	4	40	60	100
		BT2FY14-CP05/	Computer Programming Lab/											
9	ESC	BT2FY17-CP08	Basic Civil Engineering Lab	1	0	0	1	2	-	-	2	20	30	50
		BT2FY16-CP07/	Basic Electrical Engineering Lab/											
10	ESC	BT2FY19-CP10	Computer Aided Machine Drawing	2	0	0	2	4	-	-	4	40	60	100
		BT2FY18-CP09	Computer Aided Engineering Graphics/											
<b>Total</b>				<b>21</b>	12	2	7	<b>28</b>	12	2	14	280	770	<b>1050</b>

L = Lecture, T = Tutorial,  
P = Practical, IA=Internal Assessment, ETE=End  
Term Exam, Cr=Credits

**10.III/IV Semester (Second Year):**

**Table: 10.1**

S. No.	Category	Credit
1	Theory	17/17
2	Practical	7/7
3	PSIT (Training)	1
Total		25/24

**11. V/VI Semester (Third Year)**

**Table: 11.1**

S. No.	Category	Credit
1	Theory	16/17
2	Practical	6/8
3	PSIT (Training)	2
Total		24/25

**12.VII/VIII Semester (Fourth Year):**

**Table: 12.1**

S. No.	Category	Credit
1	Theory	6/6
2	Practical	4/2
3	PSIT (Training)	3/0
4	PSIT (Seminar)	2/0
5	PSIT (Project)	0/7
Total		15

**13. Examination Scheme:**

**1 Credit — 50 Marks**

**170 Credit — 8500 Marks**

**128 Credit — 6250 Marks for Lateral Entry**

There will be an internal assessment for all theory subjects:

Distribution of Marks for Theory Paper:

**Table: 13.1**

S. No	Credit of Theory Paper	End Term Exam (Hours)	Internal Assessment (20%)	End Term Exam (80%)	Total Maximum Marks
1	1	2 hours	10	40	50
2	2		20	80	100
3	3	3 hours	30	120	150
4	4		40	160	200

Distribution of Marks for Practical Paper:

**Table: 13.2**

Practical	Internal	External
	40%	60%

For credit theory courses the internal assessment component shall be further divided as under :

**Table: 13.3**

S. No	Credit of Theory Paper	MARKS	Mid Term	Assignments/ Presentations/Attendance
			50%	50%
1	1	10	5	5
2	2	20	10	10
3	3	30	15	15
4	4	40	20	20

#### 14. Pass Rules for B. Tech. (4 Yr. Program)

The result of a candidate will be worked out at the end of each Semester Examination. The academic performance of a student is graded on a ten point scale. The letter grades, the guidelines for conversion of marks to letter grades and their equivalent grade points are as follows:

**Table: 14.1**

S. No.	Marks ( $x_i$ )	Grade	Grade Points
1	$x_i \geq 90$	O	10
2	$85 \leq x_i < 90$	A+	9.0
3	$80 \leq x_i < 85$	A	8.5
4	$75 \leq x_i < 80$	B+	8.0
5	$70 \leq x_i < 75$	B	7.5
6	$65 \leq x_i < 70$	C+	7.0
7	$60 \leq x_i < 65$	C	6.5
8	$55 \leq x_i < 60$	D+	6.0
9	$50 \leq x_i < 55$	D	5.5



10	$45 \leq x_i < 50$	E+	5.0
11	$40 \leq x_i < 45$	E	4.0
12	$x_i < 40$	F	0

1. For a Pass, candidate must obtain at least grade E for each theory and practical. If a student remains "**Absent**" or obtains "**Zero**" marks in any of external component of theory or practical, he/she will be awarded "**F**" grade, respectively and will be required to appear in the subsequent back examinations. "**F**" grade student while applying for back paper exam., may opt either of the following options :

- a) Wish to carry forward the previous marks of internal assessment.
  - b) Wish to improve the internal assessment too.
- (i) Grace marks awarded will be maximum 6 marks per semester. Grace marks shall not be counted towards merit position.
  - (ii) Revaluation and copy view system will prevail as per existing examination regulations. However, change of grade point of individual candidate after the revaluation will be independent and shall not affect the grade point of other students.
  - (iii) For a back examinee the grade and grade point of a particular subject/paper shall be calculated on the basis of its appearance in present (appearing) examination.
  - (iv) At any point in time, a student can have maximum backlogs (F) pending. If backlogs are more than 8 then new subjects will not be allocated and he/she is detained for one year. And maximum 4 attempts will be allowed for each backlog.
  - (v) The result may include the absolute marks obtained by student in an individual subject with related grade. However, the mark-sheet will contain the Grade, SGPA and CGPA only along with the important related rules of CBCS system.

### 15.Semester wise SGPA:

$$SGPA = \frac{\sum_{i=1}^n c_i \times g_i}{\sum_{i=1}^n c_i}$$

where,

$c_i$  = Number of credits of the  $i^{\text{th}}$  course of a semester for which SGPA is to be calculated.

$g_i$  = Grade points obtained in  $i^{\text{th}}$  course

$i = 1, 2, \dots, n$  represent the number of course in which a student is registered in the concerned semester.

### 16. Overall CGPA:

$$CGPA = \frac{\sum_{i=1}^m c_i \times g_i}{\sum_{i=1}^m c_i}$$

where

$c_i$  = Number of credits of the  $i^{\text{th}}$  course of a semester.

$g_i$  = Grade points obtained in  $i^{\text{th}}$  course. The Grade, lower than 'E' (i.e. grade point < 4.0) in a course shall not be taken into account.

$i=1,2,\dots, m$  represent the number of courses in which a student was registered and obtained a grade not lower than 'E' up to that semester for which CGPA is to be calculated.

- (i) The SGPA/CGPA shall be awarded in each semester.
- (ii) SGPA/CGPA shall be rounded off to two decimal digits on higher side.
- (iii) Final course merit will be decided on the basis of absolute marks obtained by an individual student considering relevant merit ordinance of the university.  
Revaluation result will be taken into account for deciding the merit of the students.
- (iv) Conversion of Percentage to CGPA

$$\text{Equivalent Percentage} = 10 \times \text{CGPA}$$

- (v) Award of Division: The division of the student shall be awarded in the following manner (subject to the passing of all the semester courses):

**Table: 16.1**

1	$\text{CGPA} > 7$	1 <sup>st</sup> Division with Distinction
2	$6 < \text{CGPA} < 7$	1 <sup>st</sup> Division
3	$5 < \text{CGPA} < 6$	2 <sup>nd</sup> Division
4	$4 < \text{CGPA} < 5$	Pass

- (vi) Maximum duration for the completion of course will be eight (8) years

### 17. End Term Exam Theory Paper Pattern:

**Table: 17.1**

S. No.	Exam Hours	Max. Marks	Candidate has to attempt/ Total number of questions		
			PART A (Compulsory)	PART B (internal choice)	PART C (internal choice)
1	2 Hours	40	10/10	5/10	2/4
2		80			
3	3 Hours	120	10/10	5/10	4/8
4		160			

**Table: 17.2**

S. No.	Exam Time		Max. Marks	
			40	80
1	2 Hours	Part A	$10 \times 1 = 10$	$10 \times 2 = 20$
		Part B	$5 \times 3 = 15$	$5 \times 6 = 30$
		Part C	$2 \times 7.5 = 15$	$2 \times 15 = 30$
			<b>120</b>	<b>160</b>
2	3 Hours	Part A	$10 \times 2 = 20$	$10 \times 3 = 30$
		Part B	$5 \times 8 = 40$	$5 \times 10 = 50$
		Part C	$4 \times 15 = 60$	$4 \times 20 = 80$

PART A: Short answer questions (up to 25 words).

PART B: Analytical/Problem Solving questions.

PART C: Descriptive/ Analytical/Problem solving/Design questions.