



BIKANER TECHNICAL UNIVERSITY, BIKANER
बीकानेर तकनीकी विश्वविद्यालय, बीकानेर
OFFICE OF THE DEAN ACADEMIC



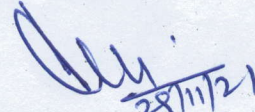
Ref.: F(17)/Acad.I/ BoS/2021-22/ 2188

Date: 29.11.2021

Office Order

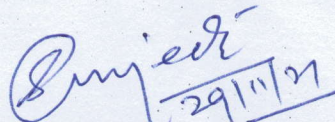
As per resolution of 7th Academic Council vide agenda no. AC 7.10, the new Scheme and CBCS Guideline have been approved for B.Tech Programme. This is applicable for students admitted in 1st Year in session 2021-22 and onwards.

Encl.- CBCS Guideline and New Scheme


(Dr. J. P. Bhamu)
Dean Academics

Copy to:

1. PS to Hon'ble Vice-Chancellor, BTU
2. Dean, FoEA
3. Registrar, BTU
4. CoE, BTU
5. Guard File


(Mr. Sanjeet Kumar)
Associate Dean
Academics





Guidelines for New Scheme for Undergraduate

B. Tech. Courses in Engineering & Technology 2021-22 and Onwards

1. Definition of Credit:

Table: 1.1

1 Hour Lecture (L) per week	1 Credit
1 Hour Tutorial (T) per week	1 Credit
1 Hour Practical (P) per week	0.5 Credit

2. General rules for Credits:

- Total 168 credits will be required to earn by a student to be eligible to get Undergraduate Degree in Engineering & Technology.
- Total 126 credits (i.e. 168-42) will be required for a student to be eligible to get Undergraduate Degree in Engineering & Technology admitted through Lateral Entry (LEEP) in 2022-23 and onward.
- A student will be eligible to get B. Tech. Degree with Specialization/minor, if he/she secures additional 18-20 credits. These 18-20 credits could be acquired through offline courses designed by University and MOOCs.
- The structure of the degree will be as follows:

Table: 2.1

Degree	Required Credits
B. Tech.	168*
B. Tech. with Specialization/Minor	168+ (18 to 20) (Through offline courses and MOOCs)

* for LEEP students 126 credits are required

3. Structure of Undergraduate Engineering & Technology Program:

Table: 3.1

S. No.	Category	Abbreviation	Code	Break-up of Credits
1.	University Core (Basic Sciences)	UCB	1	22
2.	University Core (Engineering Sciences)	UCE	2	20
3.	University Core (Humanities, Social Sciences and Management)	UCH	3	06
4.	Departmental Core	DC	4	81
5.	Departmental Elective	DE	5	08

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6.	University Elective	UE	6	06
7.	University Independent (UI) (Project Work, Internship, Seminar)	UI	7	17
8.	University General Elective -Co-Curricular Activities	CCA	8	08
9.	Mandatory Course (Induction Training, Essence of Indian Traditional Knowledge and Constitution of India)	TKC	9	Non-Credit
10.	Total Credits Required for B. Tech. Degree			168
11.	Offline Courses/ MOOCs (for Specialization/ Minor)		0	18-20
12.	Total Credits Required for Award of B. Tech. Degree with Specialization/ Minor	On Acquiring 18 to 20 Credits.		168+(18 to 20) = 186 to 188

4. Definition of Course Code:
$$\langle N_1 \rangle \langle XX \rangle \langle N_2 \rangle \langle - \rangle \langle YY \rangle$$

- N_1 : "Semester Code" in numeric single digit, i.e. 1 to 8.
- XX : "Branch Code" in two digit alphabets as per the Table: 4.1
- N_2 : 0-9: "Category Code" in single digit (as per the above table available in point no.3)
- $\langle - \rangle$: Symbol dash.
- YY : "Course Number" in two digit numeric as per the Table: 4.2

Table: 4.1

S. No.	UG-Branch	Code (XX)
1.	First Year	FY
2.	Aeronautical Engineering	AR
3.	Agriculture Engineering	AG
4.	Artificial Intelligence	AI
5.	Artificial Intelligence & Data Science	AD
6.	Artificial Intelligence & Machine Learning	AM
7.	Automobile Engineering	AE
8.	Bio- Medical Engineering	BE
9.	Bio-Technology	BT
10.	Civil Engineering	CE
11.	Chemical Engineering	CH

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12.	Ceramic Engineering	CR
13.	Computer Science & Engineering	CS
14.	Computer Science & Engineering (Artificial Intelligence)	CA
15.	Computer Science & Engineering (Artificial Intelligence & Machine Learning)	CM
16.	Computer Science & Engineering (Data Science)	CD
17.	Data Science	DS
18.	Electronics & Communication Engineering	EC
19.	Energy & Environmental Engineering	EN
20.	Electrical Engineering	EE
21.	Electrical & Electronics Engineering	EX
22.	Electronics Inst.& Control Engineering	EI
23.	Food Technology	FT
24.	Information Technology	IT
25.	Industrial Engineering	IE
26.	Internet of Things	IO
27.	Machine Learning & Computing	MC
28.	Mechanical Engineering	ME
29.	Mechatronics	MX
30.	Petroleum Engineering	PE
31.	Production and Industrial Engineering	PI
32.	Smart Agritech	SA
33.	Textile Chemistry	TC
34.	Textile Engineering	TE
35.	Textile Technology	TT
36.	Applied Electronics & Inst. Engineering	AX
37.	Mining Engineering	MI
38.	Nanotechnology	NT
39.	Petrochemical Engineering	PC
40.	Energy Technology	ET

Table: 4.2

S. No.	Course Detail	Course No. (YY)
1.	CCA	00
2.	All Theory Courses (in a Semester) except Elective Courses	01-10
3.	Department Elective	11-19
4.	Lab/Practical/Design Courses in a Semester	20-29
5.	Training	30

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6.	Seminar	40
7.	Project	50
8.	University Elective	60
9.	MOOCs/Offline Courses (For Specialization/ Minor)	70 Onward

5. Semester wise credit system:

Table: 5.1

S. No.	Semester	Credits		Total Credits
		Course	CCA	
1.	I	21	00	21
2.	II	21	00	21
3.	III	24	01	25
4.	IV	24	01	25
5.	V	25	01	26
6.	VI	22	02	24
7.	VII	14	01	15
8.	VIII	09	02	11
Total		160	08	168

6. Mandatory Trainings (Internship):

Table: 6.1

S. No.	Duration of Training	Mode of Training	After	Exam Semester	Credits
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 (LEEP) students may complete their Soft skill part time training, which will be decided at Institute level during III semester.

Credit Distribution of Project/Seminar/Industrial Training (UI):

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Table: 6.2

UI**	Credits			Total Credits
	Project	Seminar	Training	
	08	02	07	17

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

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

Table: 7.1

S. No.	Category	Credit
1.	Theory	15
2.	Practical	06
3.	CCA	00
	Total	21

Table: 7.2

S. No.	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	UCB	1FY1-01	Engineering Mathematics-I	3	1	-	30	70	100	4
2	UCB	1FY1-02 / 1FY1-03	Engineering Physics/ Engineering Chemistry	3	-	-	30	70	100	3
3	UCH	1FY3-04 / 1FY3-05	Communication Skills/ Managerial Economics and Financial Accounting	2	-	-	30	70	100	2
4	UCE	1FY2-06 / 1FY2-07	Introduction to Built Environment/ Basic Electrical Engineering	3	-	-	30	70	100	3
5	UCE	1FY2-08 / 1FY2-09	Computer Fundamentals & Programming/ Elements of Mechanical Engineering	3	-	-	30	70	100	3
6	UCB	1FY1-20 / 1FY1-21	Engineering Physics Lab/ Engineering Chemistry Lab	-	-	2	60	40	100	1
7	UCH	1FY3-22 / 1FY3-23	Communication Skill Lab/ Technical Communication Lab	-	-	2	60	40	100	1
8	UCE	1FY2-24 / 1FY2-25	Computer Programming Lab/Mechanical Workshop Practice	-	-	3	60	40	100	1.5
9	UCE	1FY2-26 / 1FY2-27	Built Environment Practices/ Basic Electrical Engineering Lab	-	-	2	60	40	100	1
10	UCE	1FY2-28	Engineering Visualization	-	-	3	60	40	100	1.5
Total									1000	21

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

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

Table: 8.1

S. No.	Category	Credit
1.	Theory	15
2.	Practical	06
3.	CCA	00
	Total	21

Table: 8.2

S. No.	Category	Course Code	Course Title	Hours			Marks			Credit
				L	T	P	IA	ETE	Total	
1	UCB	2FY1-01	Engineering Mathematics-II	3	1	-	30	70	100	4
2	UCB	2FY1-03 / 2FY1-02	Engineering Chemistry/ Engineering Physics	3	-	-	30	70	100	3
3	UCH	2FY3-05 / 2FY3-04	Managerial Economics and Financial Accounting / Communication Skills	2	-	-	30	70	100	2
4	UCE	2FY2-07 / 2FY2-06	Basic Electrical Engineering / Introduction to Built Environment	3	-	-	30	70	100	3
5	UCE	2FY2-09 / 2FY2-08	Elements of Mechanical Engineering/Computer Fundamentals & Programming	3	-	-	30	70	100	3
6	UCB	2FY1-21 / 2FY1-20	Engineering Chemistry Lab/ Engineering Physics Lab	-	-	2	60	40	100	1
7	UCH	2FY3-23 / 2FY3-22	Technical Communication Lab / Communication Skill Lab	-	-	2	60	40	100	1
8	UCE	2FY2-25 / 2FY2-24	Mechanical Workshop Practice / Computer Programming Lab	-	-	3	60	40	100	1.5
9	UCE	2FY2-27 / 2FY2-26	Basic Electrical Engineering Lab /Built Environment Practices	-	-	2	60	40	100	1
10	UCE	2FY2-29	Computer Aided Machine Drawing	-	-	3	60	40	100	1.5
Total									1000	21

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

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9. Examination Scheme:

168 Credit – B. Tech. Degree

126 Credit – LEEP

There will be an Internal Assessment (IA) and End Term Examination (ETE) for all theory subjects

Distribution of Marks:

Table: 9.1

All Credit Theory Subjects	End-Term Exam (Time)	End-Term Exam (Marks)	Internal Assessment (Marks)
	3 Hours	70%	30%

Distribution of Marks for Practical Examination:

Table: 9.2

Practical	Internal	External
	60%	40%

For all Credit courses (Theory) the internal assessment component shall be further divided as under:

Table: 9.3

S. No.	Component of Internal Assessment	Marks (%)
1.	I Mid-Term Examination	10
2.	II Mid-Term Examination	10
3.	Surprise Class Test/ Open Book Test	10
Total		30

10. 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 absolute marks of a student (p_i) shall be converted into relative marks (x_i) on 100 point scale as below:

$$x_i = \frac{p_i}{p_{max}} \times 100$$

where,

x_i = Converted relative marks of an individual student in a particular i^{th} subject/course (rounded off to next higher integer number).

p_i = Absolute percentage (%) of marks obtained by an individual student in the i^{th} subject/course.

p_{max} = It should be from range of highest absolute percentage of marks obtained in a subject, as per the following table:

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**Table: 10.1**

Range of Highest Percentage (%) marks obtained in a subject / paper exam by the student	p_{max} (%)
90-100	90
80-89	80
70-79	70
60-69	60
50-59	50
40-49	40

q = Highest equivalent relative marks taken for conversion purpose is as given below following table

Table: 10.2

Absolute Highest Marks obtained in a subject ($p_{absolute\ max}$)	Highest equivalent relative marks taken for conversion purpose (q) on 100 point scale
$p_{absolute\ max} \geq 75\%$	100
$60\% \leq p_{absolute\ max} < 75\%$	89
$40\% \leq p_{absolute\ max} < 60\%$	79
$p_{absolute\ max} < 40\%$	Not Considered for Conversion

The Grade and Grade Point shall be awarded to an individual student as under:

Table: 10.3

S. No.	Relative Marks (x_i)	Grade	Grade Points (g_i)
1.	$X_i \geq 90$	A ⁺⁺	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	0.0

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- (i) For a Pass, candidate must obtain at least grade **E** for each theory and practical.
- (ii) 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.
- (iii) No grace shall be awarded.
- (iv) 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.
- (v) 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.
- (vi) The result may include the absolute marks obtained by student in an individual subject with related grade. However, the mark-sheet will contained the Grade, SGPA and CGPA only along with the important related rules of CBCS system.

11. Semester wise SGPA:

$$SGPA = \frac{\sum_{i=1}^n ci * gi}{\sum_{i=1}^n ci}$$

Where,

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

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

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

12. Overall CGPA:

$$CGPA = \frac{\sum_{i=1}^m ci * gi}{\sum_{i=1}^m ci}$$

Where,

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

g_i = Grade points obtained in i^{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.

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- (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: 12.1

S. No.	CGPA	Award of Division
1.	$\text{CGPA} \geq 7.0$	1 st Division with Distinction
2.	$6.0 \leq \text{CGPA} < 7.0$	1 st Division
3.	$5.0 \leq \text{CGPA} < 6.0$	2 nd Division
4.	$4.0 \leq \text{CGPA} < 5.0$	Pass

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

13. End Term Exam Theory Paper Pattern:

From the coming academic session 2021-22, the following question paper pattern is proposed for B. Tech. course:

Table: 13.1

Exam Duration	Parts*	No. of Questions (To be Attempted/ Options Given)	Maximum Marks
3 Hours	A	10/10	10×2=20
	B	5/7	5×4=20
	C	3/5	3×10=30

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

PART B: Analytical/problem solving questions.

PART C: Descriptive/analytical/problem solving/design questions

Parts* : Each part should have at least one question from every unit.

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