OFFICE OF THE DEAN, ACADEMIC AFFAIRS
RAJASTHAN TECHNICAL UNIVERSITY, KOTA
RTU/Acad./F(17)04/CBCS Guidelines/20/ 2753-57   Date: 23.12.2020
24.

OFFICE ORDER

As per resolution of 29th Academic Council vide agenda no. 29.1(S) and subsequent approval of 35th BOM vide agenda no. 35.4(R), the new scheme and CBCS guidelines for B.Tech. 1st year from session 2020-21 onwards has been approved.

Encl.: New Scheme & CBCS Guidelines

Sd/-

(Prof. D.K. Palwalia)
Dean Academic Affairs

C.C.to:
1. PS to HVC for information
2. Dean FOEA
3. Controller of Examinations, RTU Kota – to initiate action accordingly.
4. Registrar (Member Secretary) Academic Council, RTU Kota
5. Dr. Deepak Bhatia, Web Master- to upload the new CBCS scheme of B.Tech. 1st year on University Website.

23/12/2010

(Diwakar Joshi)
Dy. Registrar A/A

The guidelines for new Scheme for Undergraduate
B.Tech. Courses in Engineering & Technology 2020-21 and Onwards

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 166 credits will be required to earn by a student to be eligible to get Undergraduate Degree in Engineering & Technology.

    (ii)   Total 125 credits (i.e. 166-41) will be required for a student to be eligible to get Undergraduate Degree in Engineering & Technology admitted through Lateral Entry (LEEP) in 2021-22 and onward.

    (iii) A student will be eligible to get B. Tech. (Honours) Degree, if he/she completes an additional 20 credits. These 20 credits could be acquired through MOOCs only.

    (iv)   The structure of the degree will be as follows:

Table: 2.1

Degree	Required Credits
B. Tech.	166*
B. Tech. (Honours)	166+20 (Through MOOC's)

      * for LEEP students 125 credits

3   Structure of Undergraduate Engineering & Technology Program:

Table: 3.1

S. No.	Category	Abbreviation	Code	Break up of Credits
1	Humanities and Social Sciences including Management courses	HSMC	**1**	**10**
2	Basic Science courses	BSC	**2**	**23**
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	ESC	**3**	**24**
4	Professional core courses	PCC	**4**	**84**
5	Professional Elective courses relevant to chosen specialization/branch	PEC	**5**	

19	Mechanical Engineering	ME
20	Mechatronics	MH
21	Petroleum Engineering	PE
22	Production and Industrial Engineering	PI
23	Textile Chemistry	TC
24	Textile Engineering	TE
25	Textile Technology	TT
26	Applied Electronics & Inst. Engineering	AI
27	Mining Engineering	MI
28	Nanotechnology	NT
29	Petrochemical Engineering	PC
30	Energy Technology	ET

(iii) N_2: 0-9: "Category Code" in single digit (as per the above table available in point no. 4)

(iv) $< - >$: Symbol dash.

(v) YY: "Course Code" in two digit numeric as per the following table:

Table: 4.2

SN	Course Detail	Course Code (YY)
1	SODECA	00
2	All theory courses (in a semester), except elective courses.	01-10
3	Program elective (PEC)	11-19
4	Lab/Practical/Design course (in a semester)	20-29
5	PSIT (Training)	30
6	PSIT (Seminar)	40
7	PSIT (Project)	50
8	Open Elective (OE)	60
9	MOOC's	61 Onwards

5   Semester wise credit system:

Table: 5.1

Sr. No.	Semester	Credits		Total Credit
		Courses	**SODECA**	
1	**I**	**20**	**0.5**	**20.5**
2	**II**	**20**	**0.5**	**20.5**
3	**III**	**24**	**0.5**	**24.5**
4	**IV**	**23**	**0.5**	**23.5**
5	**V**	**22.5**	**0.5**	**23**
6	**VI**	**23**	**0.5**	**23.5**
7	**VII**	**14.5**	**0.5**	**15**
8	**VIII**	**15**	**0.5**	**15.5**
	Total	**162**	**04**	**166**

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	**2.5**
3	45 Days	Industry only	III Year (VI Semester)	VII	**2.5**
			Total		**6**

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

Table: 6.2

	Credits			Total Credit
PSIT**	Project	Seminar	Training	
	7	**2**	**6**	**15**

**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	**14**
2	Practical	**6**
3	SODECA	**0.5**
	Total	**20.5**

Table: 7.2

SN	Category	Course Code	Course Title	Hours			Marks			Cr
				L	T	P	IA	ETE	Total	
1	BSC	1FY2-01	Engineering Mathematics-I	3	1	-	30	70	**100**	**4**
2	BSC	1FY2-02/ 1FY2-03	Engineering Physics/ Engineering Chemistry	3	1	-	30	70	**100**	**4**
3	HSMC	1FY1-04/ 1FY1-05	Communication Skills/ Human Values	2	-	-	30	70	**100**	**2**
4	ESC	1FY3-06/ 1FY3-07	Programming for Problem Solving/ Basic Mechanical Engineering	2	-	-	30	70	**100**	**2**
5	ESC	1FY3-08/ 1FY3-09	Basic Electrical Engineering/ Basic Civil Engineering	2	-	-	30	70	**100**	**2**
6	BSC	1FY2-20/ 1FY2-21	Engineering Physics Lab/ Engineering Chemistry Lab	-	-	2	60	40	**100**	**1**
7	HSMC	1FY1-22/ 1FY1-23	Language Lab/ Human Values Activities and Sports	-	-	2	60	40	**100**	**1**
8	ESC	1FY3-24/ 1FY3-25	Computer Programming Lab/ Manufacturing Practices Workshop	-	-	3	60	40	**100**	**1.5**
9	ESC	1FY3-26/ 1FY3-27	Basic Electrical Engineering Lab/ Basic Civil Engineering Lab	-	-	2	60	40	**100**	**1**
10	ESC	1FY3-28/ 1FY3-29	Computer Aided Engineering Graphics/ Computer Aided Machine Drawing	-	-	3	60	40	**100**	**1.5**
11	SODECA	1FY8-00							**100**	**0.5**
								Total		**20.5**

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

8   **II Semester (First Year): Common to all branches of UG Engineering & Technology**
Table: 8.1

S. No.	Category	Credit
1	Theory	**14**
2	Practical	**6**
3	SODECA	**0.5**
	Total	**20.5**

Table: 8.2

SN	Category	Course Code	Course Title	Hours			Marks			Cr
				L	T	P	IA	ETE	Total	
1	BSC	2FY2-01	Engineering Mathematics-II	3	1	-	30	70	**100**	**4**
2	BSC	2FY2-03/ 2FY2-02	Engineering Chemistry/ Engineering Physics	3	1	-	30	70	**100**	**4**
3	HSMC	2FY1-05/ 2FY1-04	Human Values/ Communication Skills	2	-	-	30	70	**100**	**2**
4	ESC	2FY3-07/ 2FY3-06	Basic Mechanical Engineering/ Programming for Problem Solving	2	-	-	30	70	**100**	**2**
5	ESC	2FY3-09/ 2FY3-08	Basic Civil Engineering/ Basic Electrical Engineering	2	-	-	30	70	**100**	**2**
6	BSC	2FY2-21/ 2FY2-20	Engineering Chemistry Lab/ Engineering Physics Lab	-	-	2	30	70	**100**	**1**
7	HSMC	2FY1-23/ 2FY1-22	Human Values Activities and Sports/ Language Lab	-	-	2	30	70	**100**	**1**
8	ESC	2FY3-25/ 2FY3-24	Manufacturing Practices Workshop/ Computer Programming Lab	-	-	3	30	70	**100**	**1.5**
9	ESC	2FY3-27/ 2FY3-26	Basic Civil Engineering Lab/ Basic Electrical Engineering Lab	-	-	2	30	70	**100**	**1**
10	ESC	2FY3-29/ 2FY3-28	Computer Aided Machine Drawing/ Computer Aided Engineering Graphics	-	-	3	30	70	**100**	**1.5**
11	SODECA	2FY8-00							**100**	**0.5**
								Total		**20.5**

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

9   Examination Scheme:
166 Credit – B. Tech. Degree
125 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 (Hours)	End Term Exam (70%)	Internal Assessment 30%)	Total Maximum Marks (x)
	3 hours	**70**	**30**	**100**

Table: 9.2

Practical	Internal	External
	60%	**40%**

For all Credit courses 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	III Mid Term Examination/ Surprise Class Test/ Assignments/ Presentation	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:

$$x_i = \frac{p_i}{p_{max}} q \ ,$$

where,

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

p_i = Absolute percentage (%) of marks obtained by an individual student in the ith subject/course.

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

Table: 10.1

Range of highest absolute 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 (as given in column 2 of the following table).

Table: 10.2

Absolute highest marks obtained in a subject ($p_{absolute\ max}$)	Highest equivalent relative marks taken for conversation purpose (q) on 100 point scale
Column 1	Column 2
$p_{absolute\ max} \geq 75\%$	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
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

(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:

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

where,

c_i = Number of credits of the ith course of a semester for which SGPA is to be calculated.

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

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

12   Overall CGPA:

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

where,

c_i = Number of credits of the ith 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.

$i = 1, 2, \ldots, m$ 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

Equivalent Percentage= 10 x 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

1	CGPA$\geq$7	1st Division with Distinction
2	6$\leq$CGPA$<$7	1st Division
3	5$\leq$CGPA$<$6	2nd Division
4	4$\leq$CGPA$<$5	Pass

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

13 End Term Exam Theory Paper Pattern:
From the coming academic session 2020-21, the following single paper pastern is proposed for B. Tech. course:

Exam Duration		End Term Exam Max. Marks (70)	
3 Hours	**Part A**	10/10	10x2=20
	Part B	5/7	5x4=20
	Part C	3/5	3x10=30

PART A: Short answer questions (up to 25 words).
PART B: Analytical/Problem Solving questions.
PART C: Descriptive/ Analytical/Problem solving/Design questions.