OFFICE OF THE DEAN, ACADEMIC AFFAIRS
RAJASTHAN TECHNICAL UNIVERSITY, KOTA

RTU/Acad./F(17)04/M.Tech.(CBCS)/20/2763-67 **Date: 23.12.2020**
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OFFICE ORDER

As per resolution of 26th meeting of Faculty of Engineering & Architecture (FOEA) held on 18.11.2020 and subsequent approval of Academic Council vide agenda AC 31.11 in 36th Board of Management at agenda 36.4, the new scheme and syllabuses for M.Tech. courses and CBCS guidelines have been approved from session 2020-21 onwards.

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 scheme and syllabuses for M.Tech. courses and CBCS guidelines on University Website.

(Diwakar Joshi)
Dy. Registrar A/A

Choice Based Credit System (CBCS) for M. Tech. Program
Effective from academic session 2020-21
(as approved in 26th FOEA)

The CBCS guideline for M. Tech. are as follows:

1. Structure of Postgraduate Engineering & Technology Program (M. Tech.):

Table: 1.1

S. No.	Category	Abbreviation	Category Code	Credits
1	Program Core Courses	PCC	1	38
2	Program Elective Courses	PEC	2	
3	M. Tech. Common Courses: Research Methodology Course/ Open Elective Courses (generic in nature)/ Audit Courses*	MCC	3	2
4	Research Work: Mini Project with Seminar, Industrial Project/ Pre- dissertation, Dissertation	REW	4	28
5	Social Outreach, Discipline & Extra Curriculum Activities [Anandam]	SODECA [Anandam]	5	4

***Audit courses are non-credit courses.**

2. Definition of Course Code:

$$< N_1 >< \text{MXX} >< \text{N}_2 >< ->< YY >$$

(i) N_1: "Semester Code" in numeric single digit, i.e. 1 to 4.
(ii) M: Identification Code for M. Tech. courses (common for all).
(iii) XX: "Branch Code" in two digit alphabets as per the following Table:2.1:

Table: 2.1

S.No.	M. Tech. Program	Code (M-XX)
1	Control & Instrumentation	MCI
2	Computer Science & Engineering	MCS
3	Digital Communications	MDC
4	Environmental Engineering	MEN
5	Geotechnical Engineering	MGT
6	Industrial Engineering and Management	MIM
7	Machine Design	MMD
8	Nano-Technology	MNT
9	Production Engineering	MPD
10	Renewable Energy Technology	MRE
11	Power Systems	MPS
12	Software Engineering	MSW
13	Structural Engineering	MST
14	Textile Technology	MTX
15	Thermal Engineering	MTH
16	Transportation Engineering	MTR
17	VLSI Design	MVL
18	Power Electronics & Drives	MPE

(iv) $XX = CC$: For all M. Tech. Common Courses.
(v) N_2: 1-5: "Category Code" in single digit (as per the above Table-1.1)
(vi) $< ->$: Symbol dash.
(vii) YY: "Course Code" in two numeric digit as per the following Table: 2.2:

Table: 2.2

S.No.	Course Detail	Course Code (YY)
1	All theory courses (in a semester), except elective courses.	01-05
2	Lab/Practical/Design course (in a semester)	06-10
3	Program Elective Courses (PEC)	11-20
4	Common Courses: Research Methodology Course/ Audit Courses/Open Elective (OE)	21-40
5	Mini Project with Seminar	50
6	Industrial Project/ Pre- dissertation	60
7	Dissertation	70
8	SODECA[Anandam]	00

3. M. Tech. Common Courses:

Table: 3.1

S.No.	Course Title	Code
1	Research Methodology Course	1MCC3-21
Audit Courses 1 & 2		
1		$< N_1 >$MCC3-21
2		$< N_1 >$MCC3-22
3		$< N_1 >$MCC3-23
4		$< N_1 >$MCC3-24
5		$< N_1 >$MCC3-25
6		$< N_1 >$MCC3-26
7		$< N_1 >$MCC3-27
8		$< N_1 >$MCC3-28
Open Electives Generic in Nature)		
1		$< N_1 >$MCC3-31
2		$< N_1 >$MCC3-32
3		$< N_1 >$MCC3-33
4		$< N_1 >$MCC3-34
5		$< N_1 >$MCC3-35
6		$< N_1 >$MCC3-36

Where N_1: "Semester Code" in numeric single digit, i.e. 1 to 4.

4. Semester wise Credit Distribution: (Total 72 credit)

Table: 4.1

Sr. No.	Semester	Credits		Total Credit
		Courses	SODECA	
1	I	18	02	20
2	II	18	02	20
3	III	16	-	16
4	IV	16	-	16
	Total	**68**	**04**	**72**

4.1 Distribution of Research Work: Mini Project with Seminar, Industrial Project/ Pre-dissertation, Dissertation

Table: 4.2

	Credits			Total Credit
Research Work	Mini Project with seminar	Dissertation-I / Industrial Project	Dissertation-II	
	2	10	16	28

Table: 4.3

Research Work	Internal Assessment (60%)	End Term Exam (40%)	Total
Mini Project	60	40	100
Dissertation-I	240	160	400
Dissertation-II	360	240	600

5.Examination Scheme:

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

Distribution of Marks:

Table: 5.1

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: 5.2

Practical	Internal	External
	60%	40%

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

Table: 5.3

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**

6. Pass Rules for M. Tech. (2 Yr. Program)

The result of a candidate will be worked out at the end of each Semester Examination. For all theory and lab examinations, 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: 6.1

Range of highest absolute percentage (%) marks obtained in a subject/ paper exam by the student (say p_{mr})	**p_{max} (%)**
$90 \leq p_{mr} \leq 100$	90
$80 \leq p_{mr} < 90$	80
$70 \leq p_{mr} < 80$	70
$60 \leq p_{mr} < 70$	60
$50 \leq p_{mr} < 60$	50
$40 \leq p_{mr} < 50$	40

q = Highest equivalent relative marks taken for conversion purpose (as given in column 2 of the following Table: 6.2).

Table: 6.2

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: 6.3

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.

The research work (Dissertation-I/II) evaluation and Grade Point shall be awarded to an individual student with his/her absolute percentage directly as per Table 6.3.

7. 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^{th} course of a semester for which SGPA is to be calculated.

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

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

8. 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^{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,…, 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: 8.1

S.No.	Range of CGPA	Division
1	CGPA≥7	1st Division with Distinction
2	6≤CGPA<7	1st Division
3	5≤CGPA<6	2nd Division
4	4≤CGPA<5	Pass

(vi) Maximum duration for the completion of course will be four (4) years.

9. End Term Exam Theory Paper Pattern:

From the coming academic session 2020-21, the following single paper pastern is proposed for M. Tech. course:

Table: 9.1

• Paper Setter should prescribe answering 5 Questions • The question paper must cover all the COs [Course outcome] • If Internal choice is given, then the question in choice should be of same CO level.		
Q.NO.	**Maximum Marks**	**Structure of Questions**
1	25	Multiple Part (5 x5) covering complete syllabus and CO levels
2	10	Internal Choice is Optional. If internal choice is given then both question should be of same CO
3	10	
4	10	
5	15	Question must be based on 'higher order learning' level of course **with internal choice from the same CO.**

(Dean AA)

9.9.20

(Prof. B.P. Suneja)
Dean, FOEA