

## ACADEMIC REGULATIONS of M.Tech.

Applicable to the students admitted from the  
Academic year 2015-2016



### **MAHARAJ VIJAYARAM GAJAPATHI RAJ COLLEGE OF ENGINEERING (Autonomous)**

(Approved by AICTE, New Delhi, and permanently affiliated to JNTUK, Kakinada)

Re-Accredited by NBA, Re-accredited by NAAC with 'A' Grade,

Listed u/s 2(f) & 12(B) of UGC Act 1956.

Vijayaram Nagar Campus, Chintalavalasa,

Vizianagaram-535005, Andhra Pradesh

## Academic Regulations for M.Tech. Programmes

Applicable to the students admitted from the Academic year 2015-2016 onwards.

### 1. COURSE PATTERN:

- The program is for 2 academic years with 4 semesters.

### 2. AWARD OF DEGREE:

A student will be declared eligible for the award of degree if he/she fulfills the following academic regulations.

- A student shall be declared eligible for the award of the degree, if he/she pursues a course of study for not less than Two academic years and not more than Four academic years.
- The student shall register for 80 credits and secure all 80 credits.
- Students who fail to complete their Two Years Course of study within Four years shall forfeit their seat and their admission shall stand cancelled.

### 3. COURSE STRUCTURE:

#### M.TECH:

The total course will consist of the following components.

a) Core Mandatory(Theory)	CM	21-27 credits
b) Core Mandatory(Lab)	CM(L)	02-06 credits
c) Core Elective (Theory)	CE(T)	15-21 credits
d) Comprehensive Viva voce	CV	01-03 credits
e) Self Study(Prerequisite)	SS	01-03 credits
f) Seminar	SE	01-03 credits
g) Research methodologies	RM	01-02 credits
h) Project phase 1	PR	06-12 credits
i) Project phase 2	PR	09-15 credits

\*For all the programs offered, in the list of courses for electives one of the choices would be "MOOCs". Each department shall short list MOOCs course/(s) meeting the requirements of course duration, credits, etc., from time to time. The same shall be placed in the immediate BoS meeting for ratification.

#### 4. ABOUT GRADING SYSTEM:

Performance of a student is evaluated in terms of earned credit weighed marking system

Earned credits are defined as the sum of course credits in which grade points above a certain cut off have been obtained for declaring student pass in that course

- Points earned in a semester:

**$\Sigma$  (course credits earned x Grade points)**

Semester Grade Point Average (SGPA) for the current semester which is calculated on the basis of grade points obtained in all courses, except audit courses and courses in which satisfactory or course continuation has been awarded,

$SGPA = \Sigma(\text{course credits earned} \times \text{Grade points}) /$

$\Sigma(\text{Total course credits in the semester.})$

Cumulative Grade Point Average (CGPA) is calculated on the basis of all pass grades obtained in all courses, except audit courses, obtained in all completed semesters

**$CGPA = \Sigma(\text{course credits earned} \times \text{Grade points}) \text{ over all semesters} / \Sigma(\text{Total course credits in all the semesters.})$**

The UGC recommends a 10-point grading system with the following letter grades as given below:

O	(Outstanding)	10
A+	(Excellent)	9
A	(Very Good)	8
B+	(Good)	7
B	(Above Average)	6
C	(Average)	5
P	(Pass)	4
F	(Fail)	0
Ab	(Absent)	0

- A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.

## Illustration of Computation of SGPA and CGPA and Format for Transcripts

Computation of SGPA and CGPA

### Illustration for SGPA

Course	Credit	Grade Letter	Grade point	Credit Point (Credit x Grade)
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	<b>20</b>			<b>139</b>

Thus, **SGPA** =  $139/20 = 6.95$

### Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit: 20	Credit: 22	Credit: 25	Credit: 26
SGPA: 6.9	SGPA: 7.8	SGPA: 5.6	SGPA: 6.0

Thus, **CGPA** =  $20 \times 6.9 + 22 \times 7.8 + 25 \times 5.6 + 26 \times 6.0$

**= 7.57**

## M.Tech (STRUCTURAL ENGINEERING)

### Programme Educational Objectives

PEO 1 Impart knowledge to students in the latest technological aspects of Structural Engineering and to provide them with opportunities in taking up advanced topics of the field of study.

PEO 2 Mould the graduate Civil Engineers to undertake safe, economical and sustainable design of civil and other structures.

PEO 3 Broaden and deepen their capabilities in experimental research methods, analysis of data, and drawing relevant conclusions for scholarly writing and presentation.

PEO 4 Create a congenial environment that promotes learning, growth and imparts ability to work with inter-disciplinary teams in professional, industry and research organizations.

### Programme Outcomes

- a) Ability to Design, analyze, and evaluate systems in Structural Engineering
- b) Ability to critically assess the relevant technological issues.
- c) Ability to conduct experimental and/or analytical work and analyse results using modern mathematical and scientific methods.
- d) Ability to formulate and report relevant research problems and critically assess research of their own and of others.

COURSE STRUCTURE						
SEMESTER –I						
Sl. No.	Course Code	Subject	Hours/week			Credits
			L	T	P	C
1		Advanced Mathematics	3	1	0	4
2		Theory of Elasticity	3	1	0	4
3		Advanced Reinforced Concrete	3	1	0	4
4		Structural Dynamics and Earthquake Resistant Design	3	1	0	4
5		Elective –I				
		Advanced Structural Analysis	3	0	0	3
		Industrial Structures	3	0	0	3
		Advanced Concrete Technology	3	0	0	3
6		Elective – II				
		Design of Tall Structures	3	0	0	3
		Disaster Management	3	0	0	3
		Theory of Plates and Shells	3	0	0	3

7		Advanced Structural Engineering lab	0	0	3	2
		<b>Total Number of Credits</b>				<b>24</b>

### SEMESTER –II

Sl. No.	Course Code	Subject	Hours/Week			Credits
			L	T	P	C
1		Substructure Design	3	0	0	4
2		Finite Element method	3	1	0	4
3		Stability of Structures	3	1	0	4
4		Prestressed Concrete	3	1	0	4
5		Elective –III				
		Structural Optimization	3	0	0	3
		Bridge Engineering	3	0	0	3
		Repair and Rehabilitation of Structures	3	0	0	3
6		Elective – IV				
		Structural Reliability	3	0	0	3
		Design of Hydraulic Structures	3	0	0	3
		Plastic analysis and Design of Steel Structures	3	0	0	3
8		Computer Applications in Structural Engineering Laboratory	0	0	3	2
		<b>Total Number of Credits</b>				<b>24</b>

### SEMESTER – III

Sl.No	Course Code	Subject				Credits
			L	T	P	
1		Research Methodologies	-	-	-	2
2		Comprehensive Viva	-	-	-	2
3		Pre-requisite Study	-	-	-	2
4		Seminar	-	-	-	2
5		Project Phase - I	-	-	-	8
Total Number of Credits			-	-	-	<b>16</b>

### SEMESTER – IV

Sl.No	Course Code	Subject	L	T	P	Credits
1		Project Phase - II	-	-	-	16
Total Number of Credits			-	-	-	<b>16</b>