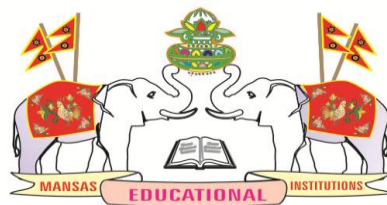


CURRICULUM

CIVIL ENGINEERING (B.Tech. Programme)

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

1. PROGRAM STRUCTURE:

1.1 The total program will consist of the following components.

a) Foundation Mandatory	FM	39-45 credits
•	Basic Science Core(BSC)	
•	Engineering Science Core(ESC)	
•	Mandatory Learning Core(MLC)	
•	English & Humanities Core(EHC)	
b) Foundation Elective	FE	06-09 credits
c) Core Mandatory(Theory)	CM	68-76 credits
d) Core Mandatory(Lab)	CM(L)	18-22 credits
e) Core Elective (Theory)	CE(T)	21-27 credits
f) Open Elective	OE	06-09 credits
g) Directed Study	DS	02-04 credits
h) Project	PR	08-12 credits
i) Audit Courses	AC	S/N

- Open electives offered by the parent department are listed in the course structure and are offered to students of other programs also.
- For audit course a student is expected to meet minimum contact hours, as prescribed by the department and shall also comply with the requirements of submission of assignments/projects.

List of Foundation electives:

1. Professional Communication
2. Business Communication
3. Material Science
4. Engineering Mathematics-II
5. Electro Magnetic Theory
6. Instrumental Methods of Analysis
7. Thermodynamics
8. Applied Analysis
9. Probability & Statistics
10. Complex variables & Statistical Methods

List of Audit courses:

1. Professional Ethics & IPR
2. Soft Skills-I
3. Soft Skills-II
4. General Aptitude
5. NSS/NCC/Sports/Cultural/Yoga
6. Health and Nutrition
7. Entrepreneurship Development
8. Foreign Language (Chinese/Japanese/Korean/German/French)

*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.

2. GRADING SYSTEM:

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

Semester Grade Point Average (SGPA) 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.

The **SGPA** is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\text{SGPA (Si)} = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

Where C_i is the number of credits of the i th course and G_i is the grade point scored by the student in the i th course.

The **CGPA** is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \frac{\sum(C_i \times S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that semester.

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

- iii. A student with Grade F is required to reappear for the examination.

Illustration for Computation of 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

20

139

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

**COURSE STRUCTURE
(B.TECH. CIVIL ENGINEERING)**

I Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1MAT001	Engineering Mathematics – I	3	1	-	3
2	A1PYT001	Engineering Physics	3	-	-	3
3	A1CIT001	Computer Programming	3	1	-	3
4	A1MED001	Engineering Drawing	1	-	3	3
5	A1CHT001	Environmental Studies	3	-	-	3
6	A1EHL001	English Language Practice – I	1	-	2	2
7	A1PYL001	Engineering Physics Laboratory	-	-	3	2
8	A1CIL001	Computer Programming Laboratory	-	-	3	2
Total Number of credits						21

II Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1MAT002	Mathematical Methods	3	1	-	3
2	A1CYT001	Engineering Chemistry	3	-	-	3
3	A1EET001	Basic Electrical and Electronics Engineering	3	1	-	3
4	A1CET002	Applied Mechanics	3	1	-	3
5	A1XXT1XX	Foundation Elective I	3	1	-	3
6	A1EHL002	English Language Practice – II	1	-	2	2
7	A1CYL001	Engineering Chemistry Laboratory	-	-	3	2
8	A1MEW001	Basic Engineering Workshop	-	-	3	2
Total Number of credits						21

III Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET201	Strength of Materials-I	3	1	-	4
2	A1CET202	Elements of Surveying	3	1	-	4
3	A1CET203	Fluid Mechanics	3	1	-	4
4	A1CET204	Building Materials and Concrete Technology	3	1	-	4
5	A1MST001	Managerial Economics & Financial Analysis	3	-	-	3
6	A1xxT1xx	Foundation Elective II	3	-	-	3
7	A1CEL201	Surveying Laboratory	-	-	3	2
8	A1CEL202	Fluid Mechanics Laboratory	-	-	3	2
9	A1EHA5XX	Audit Course 1				
Total Number of credits						26

IV Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET205	Strength of Materials-II	3	1	-	4
2	A1CET206	Hydraulics and Hydraulic Machinery	3	1	-	4
3	A1CET207	Structural Analysis	3	1	-	4
4	A1CED208	Building Planning & Civil Engineering Drawing	3	1	-	4
5	A1CET3XX	Core Elective I	3	-	-	3
6	A1CEL203	Strength of Materials Laboratory	-	-	3	2
7	A1CEL204	Hydraulic Machinery Laboratory	-	-	3	2
8	A1EHA5XX	Audit Course 2				
9	A1EHA5XX	Audit Course 3				
Total Number of credits						23

V Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET209	Water Resources Engineering	3	1	-	4
2	A1CET210	Design of Reinforced Concrete Structures	3	1	-	4
3	A1CET211	Transportation Engineering	3	1	-	4
4	A1CET212	Geotechnical Engineering	3	1	-	4
5	A1CET213	Environmental Engineering I	3	1	-	4
6	A1xxT4xx	Open Elective I	3	-	-	3
7	A1CEL205	Concrete Technology Laboratory	-	-	3	2
8	A1CEL206	Engineering Geology Laboratory	-	-	3	2
9	A1EHA5XX	Audit Course 4				
Total Number of credits						27

VI Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET214	Design of Steel Structures	3	-	1	4
2	A1CET215	Advanced Reinforced Concrete Structures	3	1	-	4
3	A1CET216	Foundation Engineering	3	1	-	4
4	A1CET217	Environmental Engineering II	3	1	-	4
5	A1CET3xx	Core Elective II	3	-	-	3
6	A1xxT4xx	Open Elective II	3	-	-	3
7	A1CEL207	Transportation Engineering Laboratory	-	-	3	2
8	A1CEL208	Geotechnical Engineering Laboratory	-	-	3	2
9	A1EHA5XX	Audit Course 5				
Total Number of credits						26

VII Semester						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET218	Estimation and Quantity Surveying	3	1	-	4
2	A1CET3xx	Core Elective III	3	-	-	3
3	A1CET3xx	Core Elective IV	3	-	-	3
4	A1CET3xx	Core Elective V	3	-	-	3
5	A1CET3xx	Core Elective VI	3	-	-	3
6	A1CET3xx	Core Elective VII	3	-	-	3
7	A1CEL209	RS& GIS Lab/STADD Pro. Laboratory	-	-	3	2
8	A1CEL210	Environmental Engineering Laboratory	-	-	3	2
9	A1EHA5XX	Audit Course 6				
Total Number of credits						23

VIII Semester						
S. No	SubjectCode	Subject	L	T	P	Credits
1	A1CET3xx	Core Elective VIII / Self study	3			3
2	A1CEP601	Directed Study				2
3	A1CEP602	Project Work				8
Total Number of credits						13

Foundation Elective – I & II						
S.No	Subject Code	Subject	L	T	P	Credits
1	A1EHT101	Professional Communication	3	-	-	3
2	A1EHT102	Business Communication	3	-	-	3
3	A1MET103	Material Science	3	-	-	3
4	A1MAT104	Engineering Mathematics II	3	-	-	3
5	A1PYT105	Electro Magnetic Theory	3	-	-	3
6	A1CYT106	Instrumental Methods of Analysis	3	-	-	3
7	A1MET107	Thermodynamics	3	-	-	3
8	A1CYT108	Applied Analysis	3	-	-	3
9	A1MAT109	Probability and Statistics	3	-	-	3
10	A1MAT110	Complex Variables & Statistical Methods	3	-	-	3

	CORE ELECTIVES		L	T	P	C
	Course Code	Subject				
CE 1	A1CET301	Advanced Surveying	3	-	-	3
	A1CET302	Advanced Concrete Technology				
	A1CET303	Engineering Geology				
CE 2	A1CET304	Advanced Structural Analysis	3	-	-	3
	A1CET305	Building Construction & Services				
	A1CET306	Construction Equipment, and Methods				
CE 3	A1CET307	Railways, Harbours and Airports	3	-	-	3
	A1CET308	Advanced Water Resources Engineering				
	A1CET309	Structural Dynamics				
CE 4	A1CET310	Earthquake Resistant Design of Structures	3	-	-	3
	A1CET311	Pavement analysis and design				
	A1CET312	Advanced Structural Design				
CE 5	A1CET313	Ground Improvement techniques	3	-	-	3
	A1CET314	Introductions to Finite Element Methods				
	A1CET315	Project Planning and Management				
CE 6	A1CET316	Urban Transport Planning	3	-	-	3
	A1CET317	Repair and Rehabilitation of Structures				
	A1CET318	Hydro power engineering				
CE 7	A1CET319	Design and Drawing of Irrigation Structures	3	-	-	3
	A1CET320	Environmental Impact Assessment and Management				
	A1CET321	Remote Sensing and GIS				
CE 8	A1CET322	Rural Roads	3	-	-	3
	A1CET323	Solid Waste Management				
	A1CET324	MOOC's courses				

Open Electives						
S. No	Subject Code	Subject	L	T	P	Credits
1	A1CET401	Project Planning and Management	3	-	-	3
2	A1CET402	Air Pollution and control	3	-	-	3
3	A1CET403	Safety Engineering	3	-	-	3
4	A1CET404	Traffic Engineering	3	-	-	3
5	A1CET405	Disaster management	3	-	-	3
6	A1CET406	Applications of RS & GIS	3	-	-	3

Audit Courses

Audit Course Electives		
S. No	Subject Code	Subject Name
1	A1EHA501	NSS
2	A1EHA502	NCC
3	A1EHA503	Sports
4	A1EHA504	Cultural
5	A1EHA505	Yoga
6	A1EHT506	Health & Nutrition
7	A1EHT507	Entrepreneurship Development
8	A1EHT508	Foreign Language (Chinese/Japanese/Korean/German)
9	A1EHT509	Professional Ethics & IPR
10	A1EHT510	Soft Skills – I
11	A1EHT511	Soft Skills – II
12	A1EHT512	General Aptitude
13		MOOC