



## **MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT**

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

**B. Tech - Civil Engineering  
Course Structure (MLRS-R24)  
Applicable From 2024-25 Admitted Batch  
Structure Breakup**

S. No	Category	Breakup of credits (Total 160 credits)
1	Humanities and Social Sciences including Management courses (HSMC)	7
2	Basic Sciences Courses (BS)	20
3	Engineering Sciences courses including Workshop, Drawing basics of electrical/mechanical/computer etc. (ES)	24
4	Professional Core courses (PC)	59
5	Professional Electives (PE)	18
6	Open Electives (OE)	9
7	Project work, Seminar and Internship in industry or elsewhere(PS)	23
8	Mandatory Courses	-
	<b>TOTAL</b>	<b>160</b>

**I YEAR I SEMESTER (I SEMESTER)**

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2410001	Matrices and Calculus	BS	3	1	0	4	40	60	100
2	2410008	Applied Physics	BS	3	0	0	3	40	60	100
3	2410501	Problem Solving using C and C ++	ES	3	0	0	3	40	60	100
4	2410010	English for Skill Enhancement	HSMC	3	0	0	3	40	60	100
		<b>Laboratory</b>								
1	2410372	Engineering Workshop	ES	0	1	4	3	40	60	100
2	2410071	Applied Physics Laboratory	BS	0	0	2	1	40	60	100
3	2410571	Problem Solving using C and C ++ Laboratory	ES	0	0	2	1	40	60	100
4	2410073	English Language and Communication Skills Laboratory	HSMC	0	0	2	1	40	60	100
		<b>Skill Development Course</b>								
1	2410596	Web Application Development	SDC	0	0	2	1	40	60	100
		<b>Mandatory Course</b>								
1		Foreign Language*	*MC	0	0	0	0	-	-	-
		Induction Program								
<b>Total Credits</b>				<b>12</b>	<b>2</b>	<b>12</b>	<b>20</b>	<b>360</b>	<b>540</b>	<b>900</b>

**\*MC- Students can choose any one of the foreign language from the following course**

- (i) 24X0FL1: French**
- (ii) 24X0FL2: German**
- (iii) 24X0FL3: Spanish**
- (iv) 24X0FL4: Korean**

**I YEAR II SEMESTER (II SEMESTER)**

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2420002	Differential Equations and Vector Calculus	BS	3	1	0	4	40	60	100
2	2420009	Engineering Chemistry	BS	3	0	0	3	40	60	100
3	2420321	Applied Mechanics	ES	3	0	0	3	40	60	100
4	2420502	Essentials of Problem Solving using Python	ES	3	0	0	3	40	60	100
		<b>Laboratory</b>								
1	2420371	Computer Aided Engineering Graphics	ES	1	0	4	3	40	60	100
2	2420072	Engineering Chemistry Laboratory	BS	0	0	2	1	40	60	100
3	2420176	Construction Materials and Engineering Geology Laboratory	PC	0	0	2	1	40	60	100
4	2420572	Essentials of Problem Solving using Python Laboratory	ES	0	0	2	1	40	60	100
		<b>Skill Development Course</b>								
1	2420027	Public Speaking Skills	SDC	0	0	2	1	40	60	100
		<b>Mandatory Course</b>								
1	2420026	Yoga and Inner Engineering	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>13</b>	<b>1</b>	<b>12</b>	<b>20</b>	<b>360</b>	<b>540</b>	<b>900</b>

**II YEAR I SEMESTER (III SEMESTER)**

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2430121	Surveying	PC	2	0	0	2	40	60	100
2	2430122	Strength of Materials-I	PC	3	0	0	3	40	60	100
3	2430123	Fluid Mechanics	PC	2	0	0	2	40	60	100
4	2430006	Probability and Statistics	BS	3	1	0	4	40	60	100
5	2430507	Data Structures	ES	3	0	0	3	40	60	100
6	243ExL1	ExL: Design and Innovation	EL	0	0	2	1	40	60	100
		<b>Laboratory</b>								
1	2430177	Surveying Laboratory	PC	0	0	2	1	40	60	100
2	2430178	Strength of Materials Laboratory	PC	0	0	2	1	40	60	100
3	2430575	Data Structures Laboratory Using Python	ES	0	0	2	1	40	60	100
		<b>Skill Development Course</b>								
1	2430196	Application of DGPS	SDC	0	0	2	1	40	60	100
		<b>Project</b>								
1	2430190	Internship – I *	PS	0	0	2	1	100	-	100
		<b>Mandatory Course</b>								
1		Indian Knowledge System	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>13</b>	<b>1</b>	<b>12</b>	<b>20</b>	<b>500</b>	<b>600</b>	<b>1100</b>

**\*Students have to complete Internship – I in semester break Minimum 2 weeks after I year II Semester**

**ExL – Experiential Learning**

**\*MC- Students can choose any one of the following course**

- 1. 24XIKS1: Indian Science, Engineering and Technology**
- 2. 24XIKS2: Fundamentals and Applications of Vedic Mathematics**
- 3. 24XIKS3: Indian Health, Wellness and psychology – Including Ayurvedic**
- 4. 24XIKS4: Indian Town Planning and Architecture**

**II YEAR II SEMESTER (IV SEMESTER)**

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2440124	Strength of Materials–II	PC	3	0	0	3	40	60	100
2	2440125	Basic Structural Analysis	PC	3	1	0	4	40	60	100
3	2440126	Hydraulics and Hydraulic Machinery	PC	3	0	0	3	40	60	100
4	2440127	Building Materials, Construction and Planning	PC	3	0	0	3	40	60	100
5	2440202	Basic Electrical and Electronics Engineering	ES	2	0	0	2	40	60	100
6	244ExL2	ExL: Prototype/Model development and Entrepreneurship	EL	0	0	2	1	40	60	100
		<b>Laboratory</b>								
1	2440179	Computer Aided Drawing Laboratory	PC	0	0	2	1	40	60	100
2	2440180	Fluid Mechanics and Hydraulic Machinery Laboratory	PC	0	0	2	1	40	60	100
3	2440272	Basic Electrical and Electronics Engineering Laboratory	ES	0	0	2	1	40	60	100
		<b>Skill Development Course</b>								
1	2440197	Sustainable and Green Construction	SDC	0	0	2	1	40	60	100
		<b>Mandatory Course</b>								
1	2440021	Environmental Science	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>14</b>	<b>1</b>	<b>10</b>	<b>20</b>	<b>400</b>	<b>600</b>	<b>1000</b>

**ExL – Experiential Learning**

## III YEAR I SEMESTER (V SEMESTER)

S. No	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2450128	Design of Reinforced Concrete Elements and Drawing	PC	3	1	0	4	40	60	100
2	2450129	Concrete Technology	PC	3	0	0	3	40	60	100
3	2450130	Soil Mechanics	PC	3	0	0	3	40	60	100
4	-	Professional Elective-I	PE	3	0	0	3	40	60	100
5	-	Open Elective-I	OE	3	0	0	3	40	60	100
		<b>Laboratory / Internship</b>								
1	2450181	Concrete Technology Laboratory	PC	0	0	2	1	40	60	100
2	2450182	Structural Analysis Laboratory	PC	0	0	2	1	40	60	100
3	2450183	Soil Mechanics Laboratory	PC	0	0	2	1	40	60	100
		<b>Project</b>								
1	2450191	Field Based Project *	PS	0	0	2	1	100	-	100
		<b>Mandatory Course</b>								
1	2450022	Gender Sensitization	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>	<b>460</b>	<b>540</b>	<b>1000</b>

**\*Students have to complete Field Based Project in semester break Minimum 2 weeks after II year II Semester**

## III YEAR II SEMESTER (VI SEMESTER)

S. No	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2460131	Design of Steel Structures and drawing	PC	3	1	0	4	40	60	100
2	2460132	Environmental Engineering	PC	3	0	0	3	40	60	100
3	2460133	Transportation Engineering	PC	3	1	0	4	40	60	100
4	-	Professional Elective –II	PE	3	0	0	3	40	60	100
5	-	Open Elective–II	OE	3	0	0	3	40	60	100
		<b>Laboratory</b>								
1	2460184	Environmental Engineering Laboratory	PC	0	0	2	1	40	60	100
2	2460185	Transportation Engineering Laboratory	PC	0	0	2	1	40	60	100
3	2460186	Computer Aided Design and Detailing Laboratory	PC	0	0	2	1	40	60	100
		<b>Mandatory Course</b>								
1	2470025	Human Values and Professional Ethics	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>15</b>	<b>2</b>	<b>8</b>	<b>20</b>	<b>360</b>	<b>540</b>	<b>900</b>

## IV YEAR I SEMESTER (VII SEMESTER)

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2470134	Estimation, Costing and Project Management	PC	3	0	0	3	40	60	100
2	2470135	Water Resources Engineering	PC	2	0	0	2	40	60	100
3	-	Professional Elective -III	PE	3	0	0	3	40	60	100
4	-	Professional Elective- IV	PE	3	0	0	3	40	60	100
5	-	Open Elective - III	OE	3	0	0	3	40	60	100
		<b>Laboratory</b>								
1	2470187	Project Management Laboratory	PC	0	0	2	1	40	60	100
2	2470188	Revit Architecture Laboratory	PC	0	0	2	1	40	60	100
		<b>Project</b>								
	2470192	Internship - II	PS	0	0	2	1	100	-	100
1	2470193	Project Stage-I	PS	0	0	6	3	100	-	100
		<b>Mandatory Course</b>								
1	2440023	Constitution of India	*MC	0	0	0	0	-	-	-
<b>Total Credits</b>				<b>14</b>	<b>0</b>	<b>12</b>	<b>20</b>	<b>480</b>	<b>420</b>	<b>900</b>

**\*Students have to complete Internship – II in semester break Minimum 2 weeks after III year II Semester**

## IV YEAR II SEMESTER (VIII SEMESTER)

S. No.	Course Code	Course Title	Course Area	Hours Per Week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		<b>Theory</b>								
1	2480010	Business Economics and Financial Analysis	HSMC	3	0	0	3	40	60	100
2	-	Professional Elective-V	PE	3	0	0	3	40	60	100
3	-	Professional Elective-VI	PE	3	0	0	3	40	60	100
		<b>Project</b>								
1	2480194	Technical Seminar	PS	0	0	4	2	100	-	100
2	2480195	Project Stage-II	PS	0	0	18	9	40	60	100
<b>Total Credits</b>				<b>9</b>	<b>0</b>	<b>22</b>	<b>20</b>	<b>260</b>	<b>240</b>	<b>500</b>

### Professional Elective (PE) Courses

#### PE I - Professional Elective I

S. No	Course Code	Course Title
1	2450141	Pre-Engineered Buildings
2	2450142	Elements of Earthquake Engineering
3	2450143	Pre-Fabricated structures
4	2450144	Introduction to Offshore Structures

#### PE II - Professional Elective II

S. No	Course Code	Course Title
1	2460145	Indeterminate Structural Analysis
2	2460146	Prestressed concrete
3	2460147	Advanced Structural Design
4	2460148	Introduction to Finite Element Methods

#### PE III - Professional Elective III

S. No	Course Code	Course Title
1	2470149	Groundwater Hydrology
2	2470150	Design of Hydraulic Structures
3	2470151	Water Shed Management
4	2470152	Water Supply Network

#### PE IV- Professional Elective IV

S. No	Course Code	Course Title
1	2470153	Railway, Airport and Harbour Engineering
2	2470154	Bridge Engineering
3	2470155	Traffic Engineering
4	2470156	Pavement Analysis and Design

#### PE V- Professional Elective V

S. No	Course Code	Course Title
1	2480157	Industrial Waste Water Treatment
2	2480158	Waste Management
3	2480159	Environmental Impact Assessment
4	2480160	Safety in Construction Practices

**PE VI - Professional Elective VI**

S. No	Course Code	Course Title
1	2480161	Foundation Engineering
2	2480162	Ground Improvement Techniques
3	2480163	Repair and Rehabilitation of Structures
4	2480164	Remote Sensing and GIS

**OE – I (Open Electives Offered to Other Departments)**

S. No	Course Code	Course Title
1	24X0101	Introduction to Civil Engineering
2	24X0102	Energy from Waste

**OE – II (Open Electives Offered to Other Departments)**

S. No	Course Code	Course Title
1	24X0103	Air and Noise Pollution Control
2	24X0104	Green Building Technology

**OE – III (Open Electives Offered to Other Departments)**

S. No	Course Code	Course Title
1	24X0105	Disaster Management
2	24X0106	Sustainable Engineering