

**Annamacharya Institute of Technology and Sciences, Tirupati**  
**Course structure for Four Year Regular B.Tech. Degree Program**  
**(Effective for the batches admitted from 2019-20)**

**CIVIL ENGINEERING (CE)**

**I B. Tech – I Semester**

**INDUCTION PROGRAM (3 weeks duration)**

- ❖ Physical activity
- ❖ Creative Arts
- ❖ Universal Human Values
- ❖ Literary
- ❖ Proficiency Modules
- ❖ Lectures by Eminent People
- ❖ Visits to local Areas
- ❖ Familiarization to Dept./Branch & Innovations

**I B. Tech – I Semester**

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
<b>THEORY</b>										
1	BSC	19ABS9901	Algebra and calculus	3	1	0	4	30	70	100
2	BSC	19ABS9903	Engineering Physics	3	0	0	3	30	70	100
3	ESC	19AES0501	Problem solving and programming	3	1	0	4	30	70	100
4	HSC	19AHS9901	Communicative English-I	2	0	0	2	30	70	100
<b>PRACTICAL</b>										
5	BSC	19ABS9908	Engineering Physics Lab	0	0	3	1.5	30	70	100
6	ESC	19AES0503	Problem solving and programming Lab	0	0	4	2	30	70	100
7	HSC	19AHS9902	Communicative English-I Lab	0	0	2	1	30	70	100
8	LC	19ALC0301	Engineering Workshop	0	0	2	1	30	70	100
<b>Total</b>							<b>18.5</b>	<b>240</b>	<b>560</b>	<b>800</b>

### I B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
<b>THEORY</b>										
1	BSC	19ABS9906	Differential Equations and Vector Calculus	3	1	0	4	30	70	100
2	BSC	19ABS9905	Engineering Chemistry	3	0	0	3	30	70	100
3	ESC	19AES0202	Basics of Electrical and Electronics Engineering-I	3	0	0	3	30	70	100
4	ESC	19AES0502	Data Structures	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
5	ESC	19AES0301	Engineering Graphics Lab	1	0	4	3	30	70	100
6	BSC	19ABS9910	Engineering Chemistry Lab	0	0	3	1.5	30	70	100
7	ESC	19AES0204	Basics of Electrical and Electronics Engineering -I Lab	0	0	3	1.5	30	70	100
8	ESC	19AES0504	Data Structures Lab	0	0	3	1.5	30	70	100
9	LC	19ALC0101	Civil Engineering Workshop	0	0	2	1	30	70	100
Total							21.5	270	630	900

## II B. Tech –I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
<b>THEORY</b>										
1	BSC	19ABS9913	Probability & Statistics, PDE and Complex Variables	3	0	0	3	30	70	100
2	HSC	19AHS9903	Communicative English II	2	0	0	2	30	70	100
3	PCC	19APC0101	Mechanics of Materials	3	0	0	3	30	70	100
4	PCC	19APC0102	Surveying	4	0	0	4	30	70	100
5	PCC	19APC0103	Fluid Mechanics	3	0	0	3	30	70	100
6	PCC	19APC0104	Building Materials and Construction	2	0	0	2	30	70	100
7	MC	19AMC9901	Biology for Engineers	2	-	-	-	30	-	30
<b>PRACTICAL</b>										
8	HSC	19AHS9904	Communicative English Lab II	0	0	2	1	30	70	100
9	PCC	19APC0105	Strength of Materials Lab	0	0	3	1.5	30	70	100
10	PCC	19APC0106	Surveying Lab	0	0	4	2.0	30	70	100
<b>TOTAL</b>							21.5	300	630	930

## II B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
<b>THEORY</b>										
1	BSC	19ABS9915	Transform Techniques and Numerical Methods	3	0	0	3	30	70	100
2	ESC	19AES0509	Basics of Python Programming	2	0	0	2	30	70	100
3	PCC	19APC0107	Strength of Materials	3	0	0	3	30	70	100
4	PCC	19APC0108	Hydraulic Engineering	3	0	0	3	30	70	100
5	PCC	19APC0109	Structural Analysis – I	3	0	0	3	30	70	100
6	PCC	19APC0110	Concrete Technology	3	0	0	3	30	70	100
7	MC	19AMC9903	Environmental Studies	2	-	-	-	30	-	30
<b>PRACTICAL</b>										
8	ESC	19AES0510	Basics of Python Programming Lab	0	0	2	1.0	30	70	100
9	PCC	19APC0111	Fluid Mechanics and Hydraulic Machinery Lab	0	0	3	1.5	30	70	100
	PCC	19APC0112	Concrete Technology Lab	0	0	3	1.5	30	70	100
11	PRC	19APR0101	Socially Relevant Project (15 Hrs/Sem)	0	0	1	0.5	50	-	50
<b>TOTAL</b>							21.5	350	630	980

### III B. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CI E	SE E	Total
<b>THEORY</b>										
1	PCC	19APC0113	Soil Mechanics	3	1	0	4	30	70	100
2	PCC	19APC0114	Design of Reinforced Concrete Structures	3	1	0	4	30	70	100
3	PCC	19APC0115	Engineering Geology	2	0	0	2	30	70	100
4	PCC	19APC0116	Structural Analysis –II	3	0	0	3	30	70	100
5	PEC		Professional Elective I	2	0	0	2	30	70	100
		19APE0101	Building Planning and bye-laws							
		19APE0102	Water Harvesting and Conservation							
		19APE0103	Cost Effective Housing Techniques							
		19APE0104	Green Buildings							
19APE0105	Photogrammetric Survey									
6	OEC		Open Elective I (Inter Disciplinary Elective I)	2	0	0	2	30	70	100
		19APE0416	Sensor Networks							
		19APC0521	Artificial Intelligence							
		19APC0323	Operations Research							
7	MC	19AMC9904	Professional Ethics and Human values	2	-	-	-	30	-	30
<b>PRACTICAL</b>										
8	PCC	19APC0117	Soil Mechanics Lab	0	0	3	1.5	30	70	100
9	PCC	19APC0118	Computer-aided Civil Engineering Drawing Lab	0	0	3	1.5	30	70	100
10	PEC	19APC0119	Engineering Geology Lab	0	0	2	1	30	70	100
11	PRC	19APR0102	Socially Relevant Projects (15Hrs/Sem)	0	0	1	0.5	50	-	50
<b>TOTAL</b>							21.5	350	630	980

### III B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
<b>THEORY</b>										
1	PCC	19APC0120	Foundation Engineering	3	0	0	3	30	70	100
2	PCC	19APC0121	Transportation Engineering	3	0	0	3	30	70	100
3	PCC	19APC0122	Remote Sensing and GIS	3	0	0	3	30	70	100
4	PEC		Professional Elective II	3	0	0	3	30	70	100
		19APE0106	Subsurface Investigation and Instrumentation							
		19APE0107	Prestressed Concrete							
		19APE0108	Advanced Structural Analysis							
		19APE0109	Railways, Airport, Docks & Harbor Engineering							
19APE0110	Finite Element Methods									
5	OEC		Open Elective II (Inter Disciplinary Elective II)	3	0	0	3	30	70	100
		19AHSMB01	Managerial Economics and Financial Analysis							
		19AOE0301	Management Science							
		19AHSMB02	Entrepreneurship Development							
6	HSC		Humanities Elective I	3	0	0	3	30	70	100
		19AOE9901	English for Research writing skills							
		19AHE9911	Environmental waste Management							
		19AHE9902	Principles of Effective Public Speaking							
7	MC	19AMC9902	Constitution of India	2				30		30
<b>PRACTICAL</b>										
8	PCC	19APC0123	Remote Sensing and GIS Lab	0	0	3	1.5	30	70	100
9	PCC	19APC0124	Transportation Engineering lab	0	0	3	1.5	30	70	100
10	PRC	19APR0104	Industrial Training/ Internship/Research Projects in National Laboratories/Academic Institutions *	0	0	0	0	-	-	-
11	PRC	19APR0103	Socially Relevant Projects (15 hrs / semester)	0	0	1	0.5	50	-	50
<b>TOTAL</b>							21.5	350	630	880

### IV B. Tech – I Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CI E	SE E	Total
<b>THEORY</b>										
1	PCC	19APC0125	Estimation, Costing and Valuation	3	0	0	3	30	70	100
2	PCC	19APC0126	Design and Drawing of Steel Structures	3	0	0	3	30	70	100
3	PCC	19APC0127	Environmental Engineering	3	0	0	3	30	70	100
4	PCC	19APC0128	Hydrology and water resources engineering	2	0	0	2	30	70	100
5	PEC		Professional Elective III	2	0	0	2	30	70	100
		19APE0111	Ground Improvement Techniques							
		19APE0112	Watershed and River Basin Management							
		19APE0113	Engineering Materials for Sustainability							
		19APE0114	Air pollution and quality control							
19APE0115	Bridge Engineering									
6	PEC		Professional Elective IV	2	0	0	2	30	70	100
		19APE0116	Repairs and Rehabilitation of Structures							
		19APE0117	Intelligent transportation systems							
		19APE0118	Hydro Power Engineering							
		19APE0119	Industrial Waste & Waste-Water Engineering							
19APE0120	Construction Technology and Project Management									
<b>PRACTICAL</b>										
7	PCC	19APC0129	Structural Design and Drawing Lab	0	0	3	1.5	30	70	100
8	PCC	19APC0130	Environmental Engineering Lab	0	0	3	1.5	30	70	100
9	PRC	19APR0105	Socially Relevant Projects (15 hrs / semester)	0	0	1	0.5	50	-	50
10	PRC	19APR0106	Survey Camp/ Industrial Training/Internship/Research Projects in National Laboratories/Academic Institutions	0	0	1	0.5	50	-	50
<b>TOTAL</b>							19.0	340	560	900

### IV B. Tech – II Semester

S.No	Category	Course Code	Course Title	Hours per week			Credits	Scheme of Examination (Max. Marks)		
				L	T	P		CIE	SEE	Total
1	OEC	OEC	Open Elective III	3	0	0	3			100
			Basic research							
			Research in technical education							
			Research Ethics and Plagiarism							
			Personality development							
Entrepreneurship development										
2	PEC	PEC	Professional Elective V	3	0	0	3			100
			Project planning and control							
			Natural Hazards							
			Plastic waste management							
			River engineering							
Safety in construction										
3	PRC	19APR0107	Technical Seminar	0	0	0	0	50	0	50
4	PRC	19APR0108	Project	0	0	14	9	60	140	200
<b>TOTAL</b>							<b>15</b>	<b>110</b>	<b>140</b>	<b>450</b>