



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

*(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)*

*NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)*

## **DEPARTMENT OF CIVIL ENGINEERING**

# **COURSE OUTCOMES (COS) OF ALL COURSES FRAMED UNDER JNTUA-R19 REGULATION**



**RAMIREDDY SUBBARAMI REDDY  
ENGINEERING COLLEGE**  
Engineering Excellence  
Through Innovation

# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

### **INDEX**

**List of all courses offered by the institution for the regulation R19, JNTUA**

<b>S.No</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Semester</b>
1	19A54101	Algebra & Calculus	<b>I</b>
2	19A56102T	Engineering physics	<b>I</b>
3	19A05101T	Problem solving & programming	<b>I</b>
4	19A52101T	Comunicative English-1	<b>I</b>
5	19A03101	Engineering workshop	<b>I</b>
6	19A56101P	Engineering Physics Lab	<b>I</b>
7	19A05101P	Problem solving & Programming Lab	<b>I</b>
8	19A52101P	Communicative English 1 Lab	<b>I</b>
9	19A02201T	Basic Electrical & Electronics Engineering	<b>II</b>
10	19A54201	Differential Equations and Vector calculus	<b>II</b>
11	19A51101T	Engineering Chemistry	<b>II</b>
12	19A05201T	Data Structures	<b>II</b>
13	19A03102	Civil Engineering Workshop	<b>II</b>
14	119A03102	Engineering Graphics Lab	<b>II</b>
15	19A02201P	Basic Electrical & Electronics Engineering Lab	<b>II</b>
16	19A51101P	Engineering Chemistry Lab	<b>II</b>
17	19A05201P	Data Structures Lab	<b>II</b>
18	19A54301	Complex Variables, Transforms and Partial Differential Equations	<b>III</b>
19	19A01301T	Strength of Materials-I	<b>III</b>
20	19A01302T	Fluid Mechanics	<b>III</b>
21	19A01303T	Surveying	<b>III</b>
22	19A01304	Building Materials and Construction	<b>III</b>
23	19A05304T	Python Programming	<b>III</b>
24	19A99301	Environmental Science	<b>III</b>
25	19A01301P	Strength of Material Lab	<b>III</b>
26	19A01302P	Fluid Mechanics Lab	<b>III</b>
27	19A01303P	Surveying Lab	
28	19A01401	Strength of Materials-II	<b>IV</b>
29	19A01402T	Hydraulics and Hydraulic Machinery	<b>IV</b>
30	19A01403	Structural Analysis-I	<b>IV</b>
31	19A01404T	Concrete Technology	<b>IV</b>
32	19A01405T	Transportation Engineering	<b>IV</b>



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

33	19A01406	Environmental Engineering	IV
34	19A99302	Biology For Engineers	IV
35	19A01402P	Hydraulic Machinery Lab	IV
36	19A01405P	Transportation Engineering Lab	IV
37	19A01501	Design of Reinforced Concrete Structures	V
38	19A01502	Water Resources Engineering	V
39	19A01503T	Engineering Geology	V
40	19A01504	Structural Analysis-II	V
41	19A01505c	Environmental Pollution and Control	V
42	19A52506a	Technical Communication And Presentation Skills	V
43	19A01507	Computer Aided Civil Engineering Drawing	V
44	19A01508	Environmental Engineering Lab	V
45	19A01503P	Engineering Geology Lab	V
46	19A01509	Socially Relevant Project	V
47	19A99501	Mandatory course: Constitution of India	V
48	19A01601T	Geotechnical Engineering -I	VI
49	19A01602	Design of Steel Structures	VI
50	19A52601T	English Language Skills	VI
51	19A01603b	Ground Improvement Techniques	VI
52	19A52604a	Soft Skills	VI
53	19A52602b	Managerial Economics And Financial Analysis	VI
54	19A01601P	Geotechnical Engineering lab	VI
55	19A52601P	English Language Skills Lab	VI
56	19A01605	Socially Relevant Project	VI
57	19A99601	Mandatory Course: Research Methodology	VI
58	19A01701	Geotechnical Engineering-II	VII
59	19A01702	Estimation & costing	VII
60	19A01703a1 19A01703a2 19A01703b1 19A01703b2 19A01703c1 19A01703c2 19A01703d1 19A01703d2 19A01703e1 19A01703e2	Bridge Engineering Prestressed concrete Expansive soils Rock Mechanics Industrial Waste & Waste Water Engineering Remote Sensing and GIS Traffic Engineering Urban Transportation Planning Water Resources System Analysis OR River Basin Management	VII
61	19A01404P	Concrete technology Lab	VII
62	19A01705	Computer Aided Design Lab	VII
63	19A01706	Project*	VII
64	19A01707	Industrial Training/Skill Development/Research	VII



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)

NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

RAMIREDDY SUBBARAMI REDDY  
ENGINEERING COLLEGE  
Engineering Excellence  
Through Innovation

## DEPARTMENT OF CIVIL ENGINEERING

		Project*	
65	19A01801a1 19A01801a2 19A01801a3 19A01801b1 19A01801b2  19A01801c1 19A01801c2 19A01801d1 19A01801d2 19A01801e1 19A01801e2 19A01801e3	Finite Element Methods Advanced R.C.C Structural Design Advanced steel structures Advanced Foundation Engineering Soil structure interaction Environmental Impact Assessment Environmental Economics Docks and Harbor Engineering Traffic Analysis Design and Drawing of Irrigation Structures Water Shed Management Sustainable Water Resources Development	<b>VIII</b>
66	19A01802a 19A01802b	Disaster Management. Global Warming and climate changes	<b>VIII</b>
67	19A01803	Project	<b>VIII</b>



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

### **R19- COURSE OUTCOME**

YEAR & SEM	SUBJECT CODE	SUBJECT NAME	CO	COURSE OUTCOME
SEM-I	19A54101	Algebra and calculus	4101.1	Develop the use of matrix algebra techniques that is needed by engineers for practical applications. (BTL6)
			4101.2	Utilize mean value theorems to real life problems. (BTL3)
			4101.3	Familiarize with functions of several variables which is useful in optimization. (BTL6)
			4101.4	Familiarize with 2- dimensional coordinate systems. (BTL2)
			4101.5	Learn the Utilization of special functions such as Beta and Gamma Functions. (BTL2)
SEM-I	19A56102T	Engineering physics	6101T.1	Explain interference, diffraction, polarization. (BTL2)
			6101T.2	Describe dielectrics, magnetic materials (BTL2)
			6101T.3	Asses the electromagnetic wave propagation (BTL5)
			6101T.4	Interpret semiconductors (BTL2)
			6101T.5	Apply superconductivity, nano material techniques (BTL3).
SEM-I	19A05101T	Problem solving & Programming	5101T.1	Construct his own computer using parts (BTL6).



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			5101T.2	Recognize the importance of programming language independent constructs (BTL2)
			5101T.3	Solve computational problems (BTL3)
			5101T.4	Select the features of C language appropriate for solving a problem. (BTL4)
			5101T.5	Design computer programs for real world problems. (BTL6)
			5101T.6	Organize the data which is more appropriated for solving a problem. (BTL6)
SEM-I	19A52101T	Communicative English	2101T.1	Identify the need for understanding context, topic and specific information from social and transactional dialogues spoken by native speakers of English language. (BTL3)
			2101T.2	Apply rules of grammar for flawless writing and speaking with good vocabulary. (BTL3)
			2101T.3	List discourse markers to speak clearly on a specific topic/occasion in various discussions. (BTL4)
			2101T.4	Comprehend the texts after listening or reading and summarize them effectively. (BTL2)
			2101T.5	Infer a table/chart/graph by writing a paragraph coherently. (BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

SEM-I	19A03101	Engineering Workshop	3101.1	Apply wood working skills in real world applications(BTL3)
			3101.2	Build different parts with metal sheets in real world applications(BTL6)
			3101.3	Apply fitting operations in various applications.(BTL3)
			3101.4	Apply different types of basic eclectic circuit connections.(BTL3)
			3101.5	Preparation of moulds and castings .(BTL3)
SEM-I	19A56102P	Engineering Physics Lab	6101P.1	Describe optical instruments (exp no:1,2,3,4,5) (BTL2)
			6101P.2	Analyse magnetic intensity (exp no:7) (BTL4)
			6101P.3	Determine mag. suscep., hall Coeff (exp no:11,12)(BTL3)
			6101P.4	Calculate the band gap, NA, AA (exp no:14,10) (BTL3)
			6101P.5	Evaluate dielectric constant, B-H curve (exp no:6,9) (BTL3)
SEM-I	19A05101P	Problem Solving & Programming Lab	5101P.1	Construct a Computer given its parts (BTL6)
			5101P.2	Select the right control structure for solving the problem (BTL6)
			5101P.3	Analyze different sorting algorithms (BTL4)
			5101P.4	Design solutions for computational problems (BTL6)



**RAMIREDDY SUBBARAMI REDDY  
ENGINEERING COLLEGE**  
Engineering Excellence  
Through Innovation

# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			5101P.5	Develop C programs which utilize the memory efficiently using programming constructs like pointers(BTL6)
SEM-I	19A52101P	Communicative English 1 Lab	2101P.1	Assess their proficiency by listening to audio and video materials to develop their listening, speaking, reading and writing skills. (BTL5)
			2101P.2	Develop pronunciation, accent, stress, rhythm and all other aspects of the phonetics of a language for speaking and listening comprehension. (BTL3)
			2101P.3	Understand the nuances of English language with a focus on removing the influence of the mother tongue while conversing. (BTL2)
			2101P.4	Develop their communication skills and overcome the fear of public speaking by participating in GDs and role plays thereby make themselves employable. (BTL3)
			2101P.5	Evaluate and demonstrate acceptable etiquette required in social and professional contexts. (BTL5)
SEM-2	19A02201T	Basic Electrical & Electronics Engineering	2201T.1	Understand working operation of various generating stations (BTL2)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			2201T.2	Explain the types of Distribution systems (BTL2)
			2201T.3	Describe basic elements of a communication system (BTL2)
			2201T.4	Understand functioning of various communication systems (BTL2)
			2201T.5	Explain need for modulation and different modulation techniques (BTL2)
SEM-2	19A54201	Differential Equations and Vector Calculus	4201.1	Solve the linear differential equations with constant coefficients by appropriate method (BTL3)
			4201.2	Classify and interpret the solutions of Linear Differential equations (BTL4)
			4201.3	Apply a range of techniques to find solutions of standard PDEs (BTL3)
			4201.4	Interpret the physical meaning of different operators such as gradient, curl and divergence. (BTL2).
			4201.5	Estimate the work done against a field, circulation and flux using vector calculus. (BTL4)
SEM-2	19A51101T	Engineering Chemistry	51101T.1	Discuss the MOT, Apply Schrodinger wave equation to H. (BTL3)
			51101T.2	Demonstrate the application of Fullerene, CNT and Nano particles(BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			51101T.3	Differentiate between pH metry, Potentiometry (BTL2)
			51101T.4	Discuss BUNA-S and BUNA-N Elastomers (BTL2)
			51101T.5	Understand the principles of analytical instruments (BTL2)
SEM-2	19A05201T	Data Structures	5201T.1	Select Appropriate Data Structure for solving a real world problem. (BTL4)
			5201T.2	Select appropriate file organization technique depending on the processing to be done (BTL4)
			5201T.3	Construct Indexes for Databases (BTL6)
			5201T.4	Analyse the Algorithms (BTL4)
			5201T.5	Develop Algorithm for Sorting large files of data (BTL3)
SEM-2	19A01201	Civil Engineering Workshop	1201 .1	To understand the setting out of a building(BTL2)
			1201 .2	To build a wall of height 50 cm using English bond(BTL2)
			1201 .3	To design and install the plumbing system in building(BTL6)
			1201 .4	To understand the application of putty and painting (BTL2)
			1201 .5	To understand the preparation of soil cement block and cover



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				blocks(BTL2)
SEM-2	19A03102	Engineering Graphics Lab	3102.1	Use computers as a drafting tool(BTL2)
			3102.2	Draw isometric and orthographic drawings using CAD packages(BTL3)
			3102.3	Analyzing 3 dimensional objective .(BTL4)
SEM-2	19A02201P	Basic Electrical & Electronics Engineering Lab	2201P .1	Verify Kirchoff's Laws & Superposition theorem. (BTL5)
			2201P .2	Perform testing on AC and DC Machines. .(BTL4)
			2201P .3	Study I – V Characteristics of PV Cell.(BTL2)
			2201P .4	Describe construction, working and characteristics of diodes, transistors and operational amplifiers (BTL2)
			2201P .5	Demonstrate how electronic devices are used for applications such as rectification, switching and amplification (BTL2)
SEM-2	19A51101P	Engineering Chemistry Lab	51101P.1	Determine the cell constant and conduct of the solutions.(BTL3)
			51101P.2	Estimate the ferrous iron and Strength of an acid in battery. (BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			51101P.3	Prepare the advanced materials and analyse the properties. (BTL3)
			51101P.4	Analyse the IR and NMR spectroscopy. (BTL3)
			51101P.5	Analyse the saperation method of HPLC and TLC (BTL3)
SEM-2	19A05201P	Data Structures Lab	5201P.1	Select the data structure appropriate for solving the problem (BTL5)
			5201P.2	Implement searching and sorting algorithms (BTL3)
			5201P.3	Design new data types (BTL6)
			5201P.4	Illustrate the working of stack and queue (BTL4)
			5201P.5	Organize the data in the form of files (BTL6)
SEM-3	19A54301	Complex Variables, Transforms and Partial Differential Equations	54301.1	Understand functions of Complex variable and its properties. (BTL2)
			54301.2	Apply Cauchy's integral theorem and Cauchy's integral formula. (BTL3)
			54301.3	Understand the concept of Laplace transforms and find the Laplace transforms of elementary functions. (BTL2)
			54301.4	Determine Fourier coefficients (Euler's) and identify existence of fourier series of the given function. (BTL3)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			54301.5	Determine Fourier coefficients (Euler's) and identify existence of fourier series of the given function. (BTL3)
SEM- 3	19A01301T	Strength of Materials-I	1301T.1	Understand the basic concepts of forces. (BTL2)
			1301T.2	Understanding of stress strain diagram. Apply stress strain diagram for different materials. (BTL2)
			1301T.3	Understanding concept SFD and BMD. Apply S.F and B.M concept on cantilever beam with point load and UDL. (BTL2)
			1301T.4	Evaluate the bending stress and section modulus rectangular and circular sections. (BTL5)
			1301T.5	Understanding concept Shear stress distribution. Apply Shear stress distribution concept on Triangular, I & T sections. (BTL2)
SEM- 3	19A01302T	Fluid Mechanics	1302T.1	To Understand the principles of fluid statics, kinematics and dynamics. (BTL2)
			1302T.2	To classify basic terms used in fluid mechanics. (BTL4)
			1302T.3	To Interpret flow characteristics and classify the flows. (BTL5)
			1302T.4	To Apply the continuity, momentum and energy principles. (BTL3)
			1302T.5	To Estimate various losses in flow through channels. (BTL6)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

SEM-3	19A01303T	Surveying	1303T.1	Understand the working principles of survey instruments. (BTL2)
			1303T.2	Measure the horizontal distances, difference in elevations, draw and use contour plots. (BTL5)
			1303T.3	Understand the working principles of survey instruments(BTL2)
			1303T.4	Estimate the volumes of earth work(BTL6)
			1303T.5	Able to use modern survey instruments. (BTL2)
SEM-3	19A01304	Building Materials and Construction	1304.1	To Understand the characteristics of various building materials such as stone and clay product. (BTL2)
			1304.2	To Evaluate the properties of the binding materials for their suitability in building construction. (BTL5)
			1304.3	To Apply the ferrous and non-ferrous materials in building construction. (BTL3)
			1304.4	To Describe the construction procedure of various building components such as stair cases, masonry and flooring. (BTL3)
			1304.5	To Understand the installation of electrical, sanitary and plumbing fittings in buildings. (BTL2)
SEM-3	19A05304T	Python Programming	5304T.1	Apply the features of Python language in various real applications. (BTL3)
			5304T.2	Select appropriate data structure of Python for solving a problem.(BTL6)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			5304T.3	Design programs for manipulating strings(BTL6)
			5304T.4	Design object oriented programs using Python for solving real-world problems(BTL6)
			5304T.5	Apply modularity to programs. (BTL3)
SEM-3	19A01301P	Strength of Material Lab	1301P.1	To understand the Behaviour of materials like steel, wood, concrete etc (BTL2)
			1301P.2	To understand the direct tension, compression, shear, torsion and bending. (BTL2)
			1301P.3	Finding properties of materials like young's modulus, modulus of rigidity, hardness, toughness. (BTL3)
			1301P.4	To Evaluate the stiffness of springs (BTL5)
			1301P.5	To understand the different types of beams & their behaviour in bending. (BTL2)
SEM-3	19A01302P	Fluid Mechanics Lab	1302P.1	To Determine the fluid flow principles in orifice and Venturimeter. (BTL3)
			1302P.2	To Calculate Coefficient of discharge for orifice and mouth piece. (BTL3)
			1302P.3	To Analyse the Calibration of contracted Rectangular Notch and /or Triangular Notch. (BTL4)
			1302P.4	To Understand the Study of Hydraulic jump at various points. (BTL2)
			1302P.5	To Determine the Efficiency test on Centrifugal Pump and



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				performance test on Pelton wheel and Francis turbine. (BTL3)
SEM- 3	19A01303P	Surveying Lab	1302P.1	Gain basic understanding of the principle of chain survey, compass survey and plane table survey. (BTL2)
			1302P.2	Calculation of areas, Drawing plans and contour maps using different measuring equipment at field level. (BTL3)
			1302P.3	Draw the two point problem and three point problems in drawing sheet. (BTL6)
			1302P.4	Able to use Theodolite for traversing and analysis of field data. (BTL3)
			1302P.5	Use conventional surveying tools such as chain/tape, compass, plane table, level in the field of civil engineering applications such. (BTL3)
SEM- 3	19A99301	Environmental Science	99301.1	Grasp multidisciplinary nature of environmental studies and various renewable and non-renewable resources. (BTL1)
			99301.2	Understand flow and bio-geo-chemical cycles and ecological pyramids. (BTL2)
			99301.3	Understand various causes of pollution and solid waste management and related preventive measures. (BTL2)
			99301.4	About the rainwater harvesting, watershed management, ozone layer depletion and waste land





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

				reclamation. (BTL2)
			99301.5	Causes of population explosion, value education and welfare programmes. (BTL3)
SEM-4	19A01401	Strength of Materials-II	1401.1	Determine and illustrate principal stresses, maximum shearing stress, and the stresses acting on a structural member. (BTL3)
			1401.2	Apply the double integration method for cantilever, simply supported and over hanging beam. (BTL3)
			1401.3	Understanding concept of Theory of pure torsion. (BTL2)
			1401.4	Able to apply the design principles for the design of dam, chimneys, retaining walls which are subjected to both direct and bending stresses. (BTL3)
			1401.5	Understand the failure phenomenon of columns and struts and finding the stresses developed in them. (BTL2)
SEM-4	19A01402T	Hydraulics and Hydraulic Machinery	1402T.1	Understand characteristics of laminar and turbulent flows. (BTL2)
			1402T.2	Understand different formulae on open channel flow. (BTL2)
			1402T.3	Analyze characteristics for uniform and non-uniform flows in open channels. (BTL4)
			1402T.4	Design different types of turbines.(BTL6)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1402T.5	Design centrifugal and multi stage pumps. (BTL6)
SEM-4	19A01403	Structural Analysis-I	1403.1	To Apply energy theorems for analysis of indeterminate structures. (BTL3)
			1403.2	To Differentiate determinate and indeterminate structures also applying static and kinematic indeterminacies with truss problems. (BTL4)
			1403.3	To Analyze the beams subjected to loads and Study effect of sinking of supports of performance. (BTL4)
			1403.4	To Analyze beams and frames by using slope deflection method. (BTL4)
			1403.5	To Analyze beams and frames by using moment distribution method. (BTL4)
SEM-4	19A01404T	Concrete Technology	1404T.1	To Understand various ingredients of concrete and their role. (BTL2)
			1404T.2	To Examine knowledge on the fresh and hardened properties of concrete. (BTL4)
			1404T.3	To Evaluate factors influencing Shrinkage, creep and concrete. (BTL5)
			1404T.4	To Design concrete mixes using various methods. (BTL6)
			1404T.5	To Differentiate special concretes for accomplishing performance levels. (BTL4)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

SEM-4	19A01405T	Transportation Engineering	1404T.1	To Understand the history of road development in India and various road development plans. (BTL2)
			1404T.2	To Analyze various types of road cross sectional elements and to calculate radius and extra widening of horizontal curves and vertical curves. (BTL4)
			1404T.3	To Understand the traffic engineering regulations with basic parameters of traffic and to evaluate different types of traffic studies. (BTL2)
			1404T.4	To Explain Design Intersections and prepare traffic management plans. (BTL2)
			1404T.5	To Outline the highway materials and design of pavement. (BTL4)
SEM-4	19A01406	Environmental Engineering	1406.1	To Understand about quality of water and purification process. (BTL2)
			1406.2	To Apply appropriate technique for treatment of waste water. (BTL3)
			1406.3	To Identify the impact of air pollution. (BTL4)
			1406.4	To Understand consequences of solid waste and its management. (BTL2)
			1406.5	To Design domestic plumbing systems. (BTL6)
SEM-4	19A01402P	Hydraulic Machinery Lab	1402P.1	To Determine the fluid flow principles in orifice and Venturimeter. (BTL4).
			1402P.2	To Calculate Coefficient of discharge for orifice and mouth



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				piece. (BTL4).
			1402P.3	To Analyse the Calibration of contracted Rectangular Notch and /or Triangular Notch. (BTL4).
			1402P.4	To Understand the Study of Hydraulic jump at various points. (BTL2).
			1402P.5	To Determine the Efficiency test on Centrifugal Pump and performance test on Pelton wheel and Francis turbine. (BTL5).
SEM-4	19A01405P	Transportation Engineering Lab	1405P.1	To Identify Engineering Properties of Aggregates and the Grade & Properties of Bitumen. (BTL4)
			1405P.2	To Predict out the Peak Hour Traffic & Peak Time for a given location on the road.(BTL3)
			1405P.3	To Calculate Design Speed, Maximum Speed & Minimum Speed limits of a location through spot speed(BTL3)
			1405P.4	To Measure the Quality Control tests on Pavements and Pavement Materials Evaluate. (BTL3)
			1405P.5	To Examine various Specific Tests required for Field Application and draw necessary inferences. (BTL4)
SEM-4	19A99302	Biology For Engineers	99302.1	Explain about cells and their structure and function. Different types of cells and basics for classification of living Organisms.(BTL2)
			99302.2	Explain about biomolecules, their structure and function and



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				their role in the living organisms. How biomolecules are useful in Industry. (BTL2)
			99302.3	Briefly about human physiology. (BTL3)
			99302.4	Explain about genetic material, DNA, genes and RNA how they replicate, pass and preserve vital information in living Organisms. (BTL2)
			99302.5	Know about application of biological Principles in different technologies for the production of medicines and Pharmaceutical molecules through transgenic microbes, plants and animals. (BTL1)
SEM-5	19A01501	Design of Reinforced Concrete Structures	1501.1	To understand the Concepts of Limit State Method of design of RCC structures and Design of beams for flexure. (BTL2)
			1501.2	To Outline Limit state analysis and design of sections for shear and torsion and to understand and apply the concept of bond and anchorage. (BTL6)
			1501.3	To Analyze and design of columns subjected to different loads adopting IS Code. (BTL3 & BTL5)
			1501.4	To Design of isolated and combined footings and their adoptability. (BTL6)
			1501.5	To understand the performance of slabs and design of roof slabs and staircase slab. (BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

SEM- 5	19A01502	Water Resources Engineering	1502.1	To Identify major hydrologic components and apply key concepts to several practical areas of engineering hydrology and related design aspects. (BTL2)
			1502.2	To Derive Intensity-Duration-Frequency and Depth-Area Duration curves to design hydraulic structures. (BTL6)
			1502.3	To Determine aquifer parameters, yield of wells and model hydrologic processes. (BTL5)
			1502.4	To Understand soil, Groundwater, plant relationships. (BTL2)
			1502.5	To Design the Hydraulic structures. (BTL6)
SEM- 5	19A01503T	Engineering Geology	1503T.1	To Understand the weathering and formation of natural minerals. (BTL2)
			1503T.2	To Understand classification of rocks and identify mineral composition of rock. (BTL2)
			1503T.3	To Explain formation of folds strike and dip of geological structures. (BTL2)
			1503T.4	To Apply seismic scales and effects of major earthquakes earthquakes, landslides and Tsunami. (BTL3)
			1503T.5	To Outline the importance of Geophysical investigations. (BTL2)
SEM- 5	19A01504	Structural Analysis-II	1504.1	To Analyze bending moment, normal thrust and radial shear in the arches. (BTL5)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1504.2	To Analyze the variation of shear force and bending moment in the members due to rolling loads. (BTL5)
			1504.3	To Derive matrix methods in structural analysis and develop flexibility matrix for the structural elements. (BTL5)
			1504.4	To Design stiffness matrix for the structural elements and Develop relationship between flexibility and stiffness matrices. (BTL6)
			1504.5	To Analyze the formation of plastic hinges in different mechanisms. (BTL5)
SEM- 5	19A01505a	Building Construction Practice	1505a.1	To Classify suitable materials for buildings and adopt suitable construction techniques. (BTL2)
			1505a.2	To Interpret suitable internal finishes and maintenance work to enhance durability of buildings. (BTL3)
			1505a.3	To Explain safety requirements and provisions in high rise buildings. (BTL2)
			1505a.4	To Classify types of bridges based on features materials and engineering. (BTL2)
			1505a.5	To Apply knowledge on existing important power plants and their role in development. (BTL3)
SEM- 5	19A01505b	Subsurface Investigation and Instrumentation	1505b.1	To Identify different geophysical methods of exploration. (BTL4)
			1505b.2	To Formulate appropriate methods of exploration based on limitations. (BTL6)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1505b.3	To Outline the different types and concepts of sampling techniques. (BTL4)
			1505b.4	To Interpret data of soil exploration and documentation. (BTL3)
			1505b.5	To Choose appropriate instrumentation in sub soil exploration process. (BTL5)
SEM-5	19A01505c	Environmental Pollution and Control	1505c.1	To Identify the air pollutant control devices and have knowledge on the NAAQ standards and air emission standards. (BTL2)
			1505c.2	To Differentiate the treatment techniques used for sewage and industrial wastewater treatment. (BTL4)
			1505c.3	To Understand the fundamentals of solid waste management, practices adopted in his town/village and its importance in keeping the health of the city. (BTL2)
			1505c.4	To Classify the methods of environmental sanitation and the management of community Facilities without spread of epidemics. (BTL4)
			1505c.5	To Outline the importance of sustainable development while planning a project or executing an activity. (BTL2)
SEM-5	19A01505d	Advanced Surveying	1505d.1	To impart the essentiality of the base line measurement in a triangulation system. (BTL3)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1505d.2	To know practical applications of soundings in hydrographic surveying. (BTL1)
			1505d.3	Analyze the principles and components of photogrammetry. (BTL4)
			1505d.4	To understand the different vertical curves. (BTL2)
			1505d.5	Compute knowledge of remote sensing and GIS in different civil engineering applications. (BTL3)
SEM-5	19A01505e	Urban Hydrology	1505e.1	Understand basic concepts of hydrological cycle. (BTL2)
			1505e.2	Acquire skills for rainfall data acquisition. (BTL2)
			1505e.3	Design drainage network scheme. (BTL6)
			1505e.4	Apply best management practices to manage urban flooding. (BTL3)
			1505e.5	Develop master drainage plan for an urbanized area. (BTL6)
SEM-5	19A01506a	Experimental stress analysis.	1506a.1	To Interpret different methods of experimental stress analysis. (BTL3)
			1506a.2	To Explain the use of strain gauges for measurement of strain. (BTL2)
			1506a.3	To Apply different Non-destructive methods of concrete. (BTL3)
			1506a.4	To Identify the arrangements and working principles of polariscope. (BTL4)
			1506a.5	To Calculate model analysis and properties of photo elastic



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				materials. (BTL3)
SEM-5	19A52506a	Technical Communication And Presentation Skills	52506a.1	Understand the importance of LSRW skills. (BTL2)
			52506a.2	Apply the knowledge of the difference between the verbal and non-verbal communication. (BTL3)
			52506a.3	Implement the understanding of summarizing and paraphrasing. (BTL4)
			52506a.4	Plan, prepare and present individual and group presentations. (BTL6)
			52506a.5	Identify the characteristics of the job interview. (BTL3)
SEM-5	19A01507	Computer Aided Civil Engineering Drawing	1507.1	Understand basic terms plan section and elevation in drawing. (BTL2)
			1507.2	Identify sign conventions and symbols used in civil engineering drawing. (BTL4)
			1507.3	Understand planning the components of building and standard dimensions. (BTL2)
			1507.4	Draw various views of building. (BTL6)
			1507.5	Understand basic principles of BIM. (BTL2)
SEM-5	19A01508	Environmental Engineering Lab	1508.1	To Estimate various parameters like PH, Chlorides, Sulphates, Nitrates in water. (BTL3)
			1508.2	To Demonstrate the laboratory experiments on various parameters of water and waste



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

				water. (BTL3)
			1508.3	To Analyse the technical laboratory report on quality assessment of potable and waste water. (BTL4)
			1508.4	To Estimate of industrial effluents of samples in the laboratory. (BTL3) (BTL5)
			1508.5	To Apply the laboratory results in the basic environmental design and in the field of Engineering. (BTL3)
SEM-5	19A01503P	Engineering Geology Lab	1503P.1	To Interpret the knowledge of principles of engineering geology. (BTL3)
			1503P.2	To Identify the physical properties of Minerals and Rocks in the laboratory. (BTL4)
			1503P.3	To Justify the suitability of sites for various civil engineering structures. (BTL2)
			1503P.4	To Explain the knowledge for use of geological strata in the analysis and design the civil engineering structures. (BTL5)
			1503P.5	To Describe the suitability of water and soil conservation projects. (BTL5)
SEM-5	19A01509	Socially Relevant Project	1509.1	To Formulate a Socially relevant project under water quality, survey, road safety audit and Environmental Impact Audit to fulfill the requirements. (BTL6)
			1509.2	To Explain technical ideas, strategies and methodologies in an optimum manner. (BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1509.3	To Demonstrate the outputs in an efficient manner. (BTL3)
			1509.4	To Prepare abstract for given project by identifying the requirements and prospective solution. (BTL3)
			1509.5	To Prepare a good report of the project as per the guidelines and present to the panel of experts. (BTL3)
SEM- 5	19A99501	Mandatory course: Constitution of India	99501	To Understand historical background of the constitution making and its importance for building a democratic India. (BTL2)
			99501	To Explain the functioning of three wings of the government i.e., executive, legislative and judiciary. (BTL2)
			99501	To Understand the value of the fundamental rights and duties for becoming good citizen of India. (BTL2)
			99501	To Analyze the decentralization of power between central, state and local self-government. (BTL5)
			99501	To Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy. (BTL4)
SEM- 6	19A01601T	Geotechnical Engineering -I	1601T.1	To Interpret the basic and index properties of the soils also classify the soil. (BTL3)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1601T.2	To Explain the properties and factors affecting permeability and demonstrate the properties of flow nets and its uses. (BTL2)
			1601T.3	To Understand the concept of compaction and stress distribution in soils. (BTL2)
			1601T.4	To Explain the concepts of consolidation & analyze the Terzaghi's one dimensional consolidation theory. (BTL5)
			1601T.5	To Calculate the shear strength of soil under different drainage conditions. (BTL3)
SEM-6	19A01602	Design of Steel Structures	1602.1	To Derive and design the Bolted and welded connections. (BTL6)
			1602.2	To Understand the behaviour and also design the tension and compression members. (BTL2)
			1602.3	To Design and detailing of beams under different conditions. (BTL6)
			1602.4	To Determine the behaviour and also design the built-up columns and column bases as per IS Code. (BTL5)
			1602.5	To Understand and design of Plate & Gantry girders. (BTL2)
SEM-6	19A52601T	English Language Skills	52601T.1	To understand different accents spoken by native speakers of English. (BTL1)
			52601T.2	To participate in formal discussions and speak clearly on a specific topic using suitable discourse markers. (BTL3)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			52601T.3	To produce logically coherent persuasive/argumentative essays. (BTL1)
			52601T.4	To express thoughts and ideas with acceptable accuracy and fluency with a view to reach consensus in group discussions. (BTL5)
			52601T.5	To understand the structure and produce an effective project report. (BTL2)
SEM-6	19A52602b	Managerial Economics And Financial Analysis	52602b.1	Get the basic inputs of Managerial Economics and demand concept and able to estimate the future demand of a product. (BTL2)
			52602b.2	Explain the concepts of cost and production and can calculate the breakeven point. (BTL2)
			52602b.3	Learn how to take effective decisions under various market situations and also about different forms of business organizations. (BTL2)
			52602b.4	Get the inputs of accounting concepts and analyze the financial statements. (BTL2)
			52602b.5	Know how to take an effective investment decision. (BTL1)
SEM-6	19A01603b	Ground Improvement Techniques	1603b.1	To Understand methods of in-situ densification and Study different types of drains for soil densification. (BTL2)
			1603b.2	To Understand methods of dewatering, Study different types



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				of dewatering and working criteria. (BTL2)
			1603b.3	To Apply the different methods of stabilization of soils and Study utilization of industrial wastes to stabilize soils. (BTL3)
			1603b.4	To Design a reinforced earth embankment and check its stability. (BTL6)
			1603b.5	To Formulate the Utilization of advanced materials for ground improvement & understand the concepts and applications of grouting. (BTL6)
SEM-6	19A52604a	Soft Skills	52604a.1	Understand the importance of soft skills.(BTL1)
			52604a.2	Develop creative thinking and decision-making skills. (BTL6)
			52604a.3	Analyze various tactics in negotiation skills. (BTL4)
			52604a.4	Apply verbal skills in personal and professional life. (BTL3)
			52604a.5	Expound the need of facial expressions, postures and gestures. (BTL5)
SEM-6	19A01603d	Railway Engineering	1603d.1	Understand the basics of railway components. (BTL2)
			1603d.2	Understand the geometric elements of railway track. (BTL2)
			1603d.3	Understand the functions of various types of signals. (BTL2)
			1603d.4	Understand the functions associated with stations and yards. (BTL2)
			1603d.5	Study the types of control





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

				systems. (BTL1)
SEM-6	19A01603e	Hydropower Development	1603e.1	To Understand the different sources of hydropower and estimation of potential. (BTL2)
			1603e.2	To Hypothesizing the relevant procedures for planning hydro power plants. (BTL3)
			1603e.3	To Classify different turbine categories and its design. (BTL2)
			1603e.4	To Design effective water conveyance systems and design. (BTL6)
			1603e.5	To Design power house and features. (BTL6)
SEM-6	19A01604a	Industrial waste and waste water management	1604a.1	To Explain the procedures for assessment of quality of Industrial water and suggest different processes of handling waste water. (BTL2)
			1604a.2	To Calculate and measure industrial waste water flow, Suggest techniques for treatment of waste water. (BTL3)
			1604a.3	To Understand options for waste water disposal and Explain functioning of common effluent treatment plants. (BTL2)
			1604a.4	To Outline the need for common effluent treatment plant for an industry. (BTL4)
			1604a.5	To Interpret the character of waste water from tanneries and distilleries and suggest suitable waste water treatment techniques. (BTL3)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

SEM-6	19A01604b	Building Services & Maintenance	1604b.1	Understand the building drainage system. (BTL2)
			1604b.2	Understand concepts of air conditioning. (BTL2)
			1604b.3	Concepts of thermal insulation and economics of thermal insulation. (BTL1)
			1604b.4	Know about the implementation and usage of various fire resistant materials in building construction. (BTL1)
			1604b.5	Understanding of electrical installation of buildings. (BTL2)
SEM-6	19A01601P	Geotechnical Engineering lab	1601P.1	To Perform Atterberg limits test and sieve analysis for quality control. (BTL4)
			1601P.2	To Analyse the behaviour of soil by CBR test and tri-axial test. (BTL3)
			1601P.3	To Conduct Constant head and variable head test for permeability. (BTL3)
			1601P.4	To Interpret Direct shear test, Vane shear strength parameters and unconfined compression. (BTL3)
			1601P.5	To Conduct One Dimensional consolidation Test and compaction Test. (BTL3)
SEM-6	19A52601P	English Language Skills Lab	52601P.1	Remember and understand the different aspects of the English language proficiency with emphasis on LSRW skills. (BTL1)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			52601P.2	Apply communication skills through various language learning activities. (BTL3)
			52601P.3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension. (BTL4)
			52601P.4	Evaluate and exhibit acceptable etiquette essential in social and professional settings. (BTL5)
			52601P.5	Create awareness on mother tongue influence and neutralize it in order to improve fluency in spoken English. (BTL6)
SEM-6	19A01605	Socially Relevant Project	1605.1	To Formulate a Socially relevant project under Structural condition assessment, Water Management Audit, Surveys of waste management and government schemes to fulfil the requirements. (BTL6)
			1605.2	To Explain technical ideas, strategies and methodologies in an optimum manner. (BTL2)
			1605.3	To Demonstrate the outputs in an efficient manner. (BTL3)
			1605.4	To Prepare abstract for given project by identifying the requirements and prospective solution. (BTL4)
			1605.5	To Prepare a good report of the project as per the guidelines and present to the panel of experts. (BTL4)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

SEM- 6	19A99601	Mandatory Course: Research Methodology	99601.1	To Understand basic concepts of research and its methodologies. (BTL1)
			99601.2	To Demonstrate the knowledge of research processes. (BTL2)
			99601.3	To Explain and comprehend research articles in their academic discipline. (BTL2)
			99601.4	To Analyze various types of testing tools used in research. (BTL4)
			99601.5	To Design a research paper without any ethical issues. (BTL6)
SEM- 7	19A01701	Geotechnical Engineering-II	1701.1	To recommend an appropriate site investigation programme for any construction. (BTL5)
			1701.2	To explore the bearing capacity of soil for different types of shallow foundation with different conditions. (BTL3)
			1701.3	To examine the load carrying capacity & settlement of piles. (BTL4)
			1701.4	To Explain about the failure of slopes in different zones of soils. (BTL2)
			1701.5	To determine the various types of earth pressure and stability of retaining structures. (BTL3)
SEM- 7	19A01702	Estimation & costing	1702.1	Understand basics on methods and types of estimation. (BTL2)
			1702.2	Formulate specifications and tender documents. (BTL6)
			1702.3	Prepare contract agreements. (BTL3)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1702.4	Determine rate analysis of different items. (BTL3)
			1702.5	Valuation of buildings. (BTL3)
SEM- 7	19A01703a1	Bridge Engineering	1703a1.1	To Distinguish different types of I.R.C loads on the bridges and understand the different types of bridge bearings and their suitability. (BTL4)
			1703a1.2	To Understand the different forces acting on the box culverts and its design. (BTL2)
			1703a1.3	To Apply the pigeauds method of analysis of deck slabs of T beam bridges. (BTL3)
			1703a1.4	To determine the forces acting on the plate girder bridge and understand the design of plate girder bridge. (BTL3)
			1703a1.5	To Explain the different forces acting on the piers and abutments and their stability analysis. (BTL2)
SEM- 7	19A01703a2	Prestressed concrete	1703a2.1	To Understand the concepts of pre-stressing and methods of pre stressing. (BTL2)
			1703a2.2	To Compute losses of pre-stress in pre-stressed concrete members. (BTL3)
			1703a2.3	To Design PSC beams under flexure and shear. (BTL6)
			1703a2.4	To Estimate the short and long term deflections of PSC beams. (BTL3)
			1703a2.5	To Apply prestressing concepts for composite beams. (BTL3)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

SEM- 7	19A01703b1	Expansive soils	1703b1.1	To Distinguish the Nature of Soils and Soil Structure. (BTL4)
			1703b1.2	To Derive concepts of Swelling and methods of determination. (BTL3)
			1703b1.3	To Interpret foundation practices in expansive soils. (BTL3)
			1703b1.4	To Formulate different materials and techniques for stabilization. (BTL6)
			1703b1.5	To Understand procedure to improve shear strength of expansive soils. (BTL2)
SEM- 7	19A01703b2	Rock Mechanics	1703b2.1	Understand the physical and mechanics properties of rock with time. (BTL2)
			1703b2.2	Understand the behaviour of stress and strain characteristics of rocks. (BTL2)
			1703b2.3	Understand the gradual caving in or sinking of rocks. (BTL2)
			1703b2.4	Know open cost mines with a better understandings of scope for application of various numerical methods and model studies in geo-mechanics. (BTL1)
			1703b2.5	Compare the various codal provisions regarding bearing capacity. (BTL4)
SEM- 7	19A01703c1	Industrial Waste & Waste Water Engineering	1703c1.1	To Explain functioning of common effluent treatment plants. (BTL2)
			1703c1.2	To Design treatment methods for any industrial wastewater.



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				(BTL6)
			1703c1.3	To Derive the manufacturing process of various industries. (BTL3)
			1703c1.4	To Outline the need for common effluent treatment plant for an industry. (BTL4)
			1703c1.5	To Analyse the BOD, COD, TSS and MPN in waste water. (BTL4)
SEM- 7	19A01703c2	Remote Sensing and GIS	1703c2.1	Introduce the basic principles of Remote Sensing and GIS techniques. (BTL1)
			1703c2.2	Understand advantages of remote sensing. (BTL2)
			1703c2.3	Develop terrain characteristics using Mapping.(BTL6)
			1703c2.4	Know applications of GIS and data interpretation. (BTL1)
			1703c2.5	Know applications of RS & GIS in water resources applications. (BTL1)
SEM- 7	19A01703d1	Traffic Engineering	1703d1.1	To Identify traffic characteristics and traffic data collection studies. (BTL4)
			1703d1.2	To Analyze with highway capacity analysis. (BTL4)
			1703d1.3	To Design the un-signalized and signalized intersections. (BTL6)
			1703d1.4	To Evaluate the types of interchanges and design of interchanges. (BTL5)
			1703d1.5	To Understand parking facilities and to make parking surveys and design parameters to be considered in parking design. (BTL2)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

SEM-7	19A01703d2	Urban Transportation Planning	1703d2.1	To Understand the concept of travel demand. (BTL2)
			1703d2.2	To Understand the different types of transportation planning processes. (BTL2)
			1703d2.3	To Understand the different types of trip generation models. (BTL2)
			1703d2.4	To Understand necessity of traffic assignment and mode split. (BTL2)
			1703d2.5	To Understand the economic evaluation of transportation projects. (BTL2)
SEM-7	19A01703e1	Water Resources System Analysis	1703e1.1	To Understand the concepts of water resource system. (BTL2)
			1703e1.2	To Apply optimization principles to single and multi crop applications. (BTL3)
			1703e1.3	To Outline the different types of operations in water resource system. (BTL4)
			1703e1.4	To Understand applications of linear programming on applications of water resource system for crops. (BTL2)
			1703e1.5	To Develop knowledge on dynamic programming on applications of water resource system for crops. (BTL6)
SEM-7	19A01703e2	River Basin Management	1703e2.1	Understand concepts of photogrammetry. (BTL2)
			1703e2.2	Interpret the aerial photographs and satellite imageries. (BTL3)
			1703e2.3	Create and input spatial data for





# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

				GIS application. (BTL6)
			1703e2.4	Apply RS and GIS concepts in water resources engineering. (BTL3)
			1703e2.5	Applications of various satellite data. (BTL3)
SEM- 7	19A01704a	Air pollution and control	1704a.1	To understand the character of atmospheric pollutants and their effects. (BTL2)
			1704a.2	To understand the maximum mixing depth and windrose diagram. (BTL2)
			1704a.3	To Outline the general characteristics of stack emissions and their behavior. (BTL4)
			1704a.4	To Distinguish the various air pollution control equipment. (BTL4)
			1704a.5	To determine the noise sources, mapping, prediction equations. (BTL3)
SEM- 7	19A01704b	Basics of civil Engineering	1704b.1	To understand the characteristics of different building materials. (BTL2)
			1704b.2	To understand the principles of planning in buildings. (BTL2)
			1704b.3	To know about the causes of dampness in buildings and its ill effects. (BTL1) To know about the general characteristics of ideal material for damp proofing. (BTL1)
			1704b.4	To know about the various cost effective techniques in mass housing schemes. (BTL1)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1704b.5	To know about the objects of surveying and its classification. (BTL1)
SEM- 7	19A01404P	Concrete technology Lab	1404P.1	To Identify the characteristics of fine and coarse aggregates. (BTL4)
			1404P.2	To Evaluate the properties of the binding materials for their suitability in building construction. (BTL5)
			1404P.3	To Understand the workability behaviour of concrete through various tests. (BTL2)
			1404P.4	To Evaluate the strength of hardened concrete through Compressive and split tensile strength of concrete. (BTL5)
			1404P.5	To Evaluate the strength of hardened concrete through non-destructive tests. (BTL5)
SEM- 7	19A01705	Computer Aided Design Lab	1705.1	Application different types of loads like dead load, live load, earthquake load, wind load. (BTL3)
			1705.2	Design of the structural elements using different design codes. (BTL6)
			1705.3	Analysis of various elements like beam, column, truss, frame. (BTL4)
			1705.4	Interpretation the data from STAAD. (BTL3)
			1705.5	Analysis and design Retaining walls. (BTL4)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

SEM- 7	19A01706	Project	1706.1	To Apply the basic principles in Civil Engineering to fulfill the requirements. (BTL3)
			1706.2	To Explain technical ideas, strategies and methodologies in an optimum manner. (BTL2)
			1706.3	To Demonstrate the outputs in an efficient manner. (BTL3)
			1706.4	To Prepare abstract for given project by identifying the requirements and prospective solution. (BTL3)
			1706.5	To Prepare a good report of the project as per the guidelines and present to the panel of experts. (BTL3)
SEM- 7	19A01707	Industrial Training/Skill Development/Research Project	1707.1	To Illustrate effective team work after efficient testing, elaborate the completed task and compile the project. (BTL3)
			1707.2	Students can gain good practical knowledge in industrial training. (BTL2)
			1707.3	Skilled development programs are helpful for students to get the jobs once the successful completion of course. (BTL3)
SEM- 8	19A01801a1	Finite Element Methods	1801a1.1	To Demonstrate the differential equilibrium equations and their relationship. (BTL3)
			1801a1.2	To Explain the use of the basic finite elements for structural applications using truss and Beam. (BTL2)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1801a1.3	To Apply the formulation techniques to solve two – dimensional problems using triangle and quadrilateral elements. (BTL3)
			1801a1.4	To Explain the application and use of the Finite Element Methods for heat transfer problems. (BTL2)
			1801a1.5	To Understand problems involving dynamics using Finite Element Methods. (BTL2)
SEM- 8	19A01801a2	Advanced R.C.C Structural Design	1801a2.1	To Design and detailing of reinforcement of an interior panel of flat slab. (BTL6)
			1801a2.2	To Understand and design a circular bunker with the detailing of reinforcement. (BTL2)
			1801a2.3	To Design a concrete chimney with detailing of reinforcement. (BTL6)
			1801a2.4	To Design different elements of the circular and rectangular shaped water tanks resting on ground. (BTL6)
			1801a2.5	To Perform the stability analysis and also to design and detailing of the reinforcement in the various members of the cantilever and counter fort retaining walls. (BTL3)
SEM- 8	19A01801a3	Advanced steel structures	1801a3.1	To Design plate girder bridges. (BTL6)
			1801a3.2	To Explain the functions and types of bearing. (BTL2)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1801a3.3	To Design steel water tanks. (BTL6)
			1801a3.4	To Understand the steel plastic behaviour also calculates the collapse load for beams and frames. (BTL2)
			1801a3.5	To Compute the magnitude of bending moments in steel frames. (BTL3)
SEM-8	19A01801b1	Advanced Foundation Engineering	1801b1.1	To Describe the safe bearing capacity of footings subjected to vertical and inclined loads. (BTL2)
			1801b1.2	To Interpret the advanced methods of settlement computations and proportion foundation footings. (BTL3)
			1801b1.3	To Identify the methods of computing the pull-out capacity and negative skin friction of piles and compute the settlements of pile groups in clays. (BTL4)
			1801b1.4	To Evaluate the problems posed by expansive soils and the different foundation practices devised. (BTL5)
			1801b1.5	To Determine the difference between isolated footings and combined footings and mat foundations. (BTL3)
SEM-8	19A01801b2	Soil structure interaction	1801b2.1	To Describe the foundation behavior and models for soil structure interaction. (BTL2)
			1801b2.2	To Analyze the beams resting on elastic foundation. (BTL4)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1801b2.3	To Demonstrate the behavior of plates on elastic foundation. (BTL3)
			1801b2.4	To Explain the behavior of lateral loaded piles supported by elastic medium. (BTL2)
			1801b2.5	To Formulate Load deflection prediction for laterally loaded piles. (BTL6)
SEM- 8	19A01801c1	Environmental Impact Assessment	1801c1.1	To Understand the elements of EIA. (BTL2)
			1801c1.2	To Explain the factors causing impact of development activities. (BTL2)
			1801c1.3	To Formulate procedures for assessment of environmental risk. (BTL6)
			1801c1.4	To Evaluate the cost benefit ratio of a project. (BTL5)
			1801c1.5	To Analyze the role of stakeholder and public hearing in the preparation of EIA. (BTL4)
SEM- 8	19A01801c2	Environmental Economics	1801c2.1	To Outline the information on sustainable development and economics of energy. (BTL4)
			1801c2.2	To Classify the information regarding environmental degradation and economic analysis of degradation. (BTL2)
			1801c2.3	To Formulate the identification of economics of pollution and their management. (BTL6)
			1801c2.4	To Design the cost benefit analysis of environmental resources. (BTL6)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1801c2.5	To Interpret the principles of economics of biodiversity. (BTL3)
SEM-8	19A01801d1	Docks and Harbor Engineering	1801d1.1	To Explain the Docks and Harbour Engineering for water transportation in the context of regional and intercontinental transportation. (BTL2)
			1801d1.2	To Formulate the techniques of planning and designing the infrastructures required for Harbour and Port area. (BTL6)
			1801d1.3	To Analyze cargo and passenger demand forecasting cargo handling capacity of ports and economic evaluation of port project. (BTL4)
			1801d1.4	To Identify the facilities to be developed in port for navigation. (BTL4)
			1801d1.5	To Understand environmental and other impact impended due to water transportation and port activities. (BTL2)
SEM-8	19A01801d2	Traffic Analysis	1801d2.1	To Understand and appreciate the application of statistical distribution for traffic analysis. (BTL2)
			1801d2.2	To Apply queueing theory for traffic analysis and to understand various queueing systems. (BTL3)
			1801d2.3	To Analyze pedestrian gap acceptance behavior and to apply underwood's warrants. (BTL4)



# RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## DEPARTMENT OF CIVIL ENGINEERING

			1801d2.4	To Understand shockwave theory and to analyze the bottleneck situation using shockwave theory. (BTL2)
			1801d2.5	To Apply simulation technique basics for traffic analysis. (BTL3)
SEM-8	19A01801e1	Design and Drawing of Irrigation Structures	1801e1.1	Design and draw the plan and cross section of Sloping glacis weir. (BTL6)
			1801e1.2	Design and draw the plan and cross section of Tank sluice with tower head. (BTL6)
			1801e1.3	Design and draw the plan and cross section of Type III Syphon aqueduct. (BTL6)
			1801e1.4	Design and draw the plan and cross section of Surplus weir. (BTL6)
			1801e1.5	Design and draw the plan and cross section of Canal regulator. (BTL6)
SEM-8	19A01801e2	Water Shed Management	1801e2.1	Know the basic principles of watershed management. (BTL1)
			1801e2.2	Know the river basin management practices. (BTL1)
			1801e2.3	Understand better different approaches for conservation of water. (BTL2)
			1801e2.4	Identify sustainable watershed approach for resources management, prevention of soil erosion etc. (BTL4)
			1801e2.5	Different methods of rainwater harvesting management systems and role of GIS. (BTL5)



# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

SEM-8	19A01801e3	Sustainable Water Resources Development	1801e3.1	Estimate Water need. (BTL3)
			1801e3.2	Understand the planning requirements of a irrigation project. (BTL2)
			1801e3.3	Evaluate and monitor water quality. (BTL5)
			1801e3.4	Develop procedure to meet requirements in drought prone area. (BTL6)
			1801e3.5	Understand importance of interlinking of rivers. (BTL2)
SEM-8	19A01802a	Disaster Management	1802a.1	To know about the natural hazards and its management. (BTL1)
			1802a.2	To understand about the emerging infectious diseases and aids their management. (BTL2)
			1802a.3	To know about the regulations of building codes and land use planning related to risk and vulnerability. (BTL1)
			1802a.4	To know about the technological aspects of disaster management. (BTL1)
			1802a.5	To impart the education related to risk reduction in schools and communities. (BTL3)
SEM-8	19A01802b	Global Warming and climate changes	1802b.1	Identify the importance of Ozone and effect of green house gases. (BTL4)
			1802b.2	To know about the layers of atmosphere and their characteristics. (BTL1)





# **RAMIREDDY SUBBARAMI REDDY ENGINEERING COLLEGE**

(Approved by AICTE, Affiliated to JNTUA. An ISO 9001: 2015 Certified Institution)  
NH-16, Kadanuthala, Bogole Mandal, Kavali- 524 142, S.P.S.R. Nellore, Andhra Pradesh.)

## **DEPARTMENT OF CIVIL ENGINEERING**

			1802b.3	To know about the causes of climate change and its effects on various sectors. (BTL1)
			1802b.4	To know about the causes of climate change and carbon credits, effect of change in temperature and climate on India. (BTL1)
			1802b.5	To know about the clean technology, use of renewable energy, mitigation technologies and their practices. (BTL1)
SEM- 8	19A01803	Project	1803.1	To Apply the basic principles in Civil Engineering to fulfill the requirements. (BTL3)
			1803.2	To Explain technical ideas, strategies and methodologies in an optimum manner. (BTL2)
			1803.3	To Demonstrate the outputs in an efficient manner. (BTL3)
			1803.4	To Prepare abstract for given project by identifying the requirements and prospective solution. (BTL3)
			1803.5	To Prepare a good report of the project as per the guidelines and present to the panel of experts. (BTL3)