



Estd:1980

## SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JNTUK, Kakinada), (Recognized by AICTE, New Delhi)

UG Programmes CE,CSE,ECE,EEE,IT & ME are Accredited by NBA

CHINNA AMIRAM (P.O):: BHIMAVARAM :: W.G.Dt., A.P., INDIA :: PIN: 534 204

Regulation: R20		III / IV - B.Tech. I - Semester							
CIVIL ENGINEERING									
SCHEME OF INSTRUCTION & EXAMINATION (With effect from 2020-21 admitted Batch onwards)									
Course Code	Course Name	Category	Cr	L	T	P	Int. Marks	Ext. Marks	Total Marks
B20HS3101	Managerial Economics and Financial Accountancy	HS	3	3	0	0	30	70	100
B20CE3101	Design of Steel Structures	PC	3	3	0	0	30	70	100
B20CE3102	Soil Mechanics	PC	3	3	0	0	30	70	100
#PE-I	Professional Elective -I	PE	3	3	0	0	30	70	100
#OE-I	Open Elective-I	OE	3	3	0	0	30	70	100
B20CE3107	Highway Materials Testing lab	PC	1.5	0	0	3	15	35	50
B20CE3108	CACE Lab	PC	1.5	0	0	3	15	35	50
B20CE3109	Design of Special Structures (Skill Oriented Course)	SOC	2	1	0	2	--	50	50
B20MC3101	Employability Skills	MC	0	3	0	0	--	--	--
B20CE3110	Summer Internship	PR	1.5	--	--	--	--	50	50
<b>TOTAL</b>			<b>21.5</b>	<b>19</b>	<b>0</b>	<b>8</b>	<b>180</b>	<b>520</b>	<b>700</b>

	Course Code	Course
#PE-I	B20CE3103	Advanced Structural Analysis
	B20CE3104	Remote sensing & GIS Applications
	B20CE3105	Environmental Impact Assessment
	B20CE3106	Pavement Materials
#OE-I	Student has to study one Open Elective offered by AIDS or CSBS or CSE or ECE or EEE or IT or ME or S&H from the list enclosed.	

Code	Category	L	T	P	C	I.M	E.M	Exam
B20HS3101	HS	3	0	0	3	30	70	3 Hrs.

## MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY

(For CE)

### Course Objectives:

1.	To Study Managerial Economics and Demand Analysis
2.	To familiarize about the Concepts of Cost and Break-Even Analysis.
3.	To understand the nature of markets and to know the Pricing Policies
4.	To learn about accounting cycle and preparation of Financial Statements.
5.	To know the concept of Capital and sources of raising and Depreciation

**Course Outcomes:** At the end of the course, Students will be able to

S.No	Outcome	Knowledge Level
1.	Equip oneself with the knowledge of estimating the Demand and demand elasticities for a product.	K2
2.	Have knowledge of Cost and its types and ability to calculate BEP	K3
3.	Understand the nature of different markets	K2
4.	Understand Pricing Practices prevailing in today's business world	K2
5.	Prepare Financial Statements and know how to calculate Profit & Loss for a firm	K3
6.	Know Types of capital and their sources and know how to calculate Depreciation	K2

Estd. 1980

AUTONOMOUS

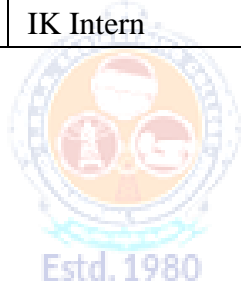
## SYLLABUS

<b>UNIT-I (10 Hrs)</b>	<p><b>Introduction to Managerial Economics and demand Analysis:</b>  <b>Managerial Economics:</b> Definition of Economics &amp; Classification of Economics (Micro &amp; Macro), Meaning, Nature, &amp; Scope of Managerial Economics. <b>Demand Analysis:</b> Concept of Demand, Determinants of Demand, Demand schedule, Demand curve, Law of Demand and its exceptions. Elasticity of Demand, Types of Elasticity of Demand. Importance of demand forecasting and its Methods.</p>
<b>UNIT-II (10 Hrs)</b>	<p><b>Cost Analysis:</b> Importance of cost analysis, <b>Types of Cost-</b> Actual cost Vs Opportunity cost, Fixed cost Vs Variable cost, Explicit Vs Implicit cost, Historical cost Vs Replacement cost, Incremental cost Vs Sunk cost; <b>Elements of costs</b> – Material, Labour, Expenses; <b>Methods of costing</b> - Job costing, contract costing, Process costing, Batch costing, Unit costing, Service costing, Multiple costing. <b>Break-even analysis:</b> Determination of Breakeven point - Applications, Assumptions and Limitations of Break -even analysis (Theory only).</p>

<b>UNIT-III (10 Hrs)</b>	<b>Introduction to Markets &amp; Pricing Policies</b> <b>Market Structures:</b> Salient Features of Perfect Competition, Monopoly, Monopolistic competition, Oligopoly and Duopoly. <b>Pricing:</b> Importance of pricing and its meaning; <b>Methods of Pricing: Cost Based</b> -Full cost, Mark-up, Marginal &Break-even; <b>Demand Based</b> - Penetrating, Skimming; <b>Competition Based-</b> Going rate, Sealed Bid, Discount; <b>Internet Pricing</b> - Flat-rate, Usage sensitive.
<b>UNIT-IV (08 Hrs)</b>	<b>Introduction to Financial Accounting:</b> Importance of Accounting - Double Entry System of Accounting - Types of Accounts - Journal, Ledger, Trail Balance, Trading Account, Profit and Loss Account and Balance Sheet (outlines only).
<b>UNIT-V (12 Hrs)</b>	<b>Capital &amp; Depreciation:</b> Types of Capital - Fixed capital & Working Capital, Components of Working Capital, Factors influencing Working capital. Methods of Raising Finance -Short term, medium term and Long term. <b>Depreciation</b> - Meaning, Importance and causes of depreciation; Methods of Depreciation- Straight line and diminishing balancing methods (Theory only)
<b>Text Books:</b>	
1.	A R Aryasri, Managerial Economics and Financial Analysis, TMH Pvt. Ltd, 2015
2.	Dr. N.Appa Rao, Dr.P. Vijayakumar: Managerial Economics and Financial Analysis', CengagePublications, 2012
<b>Reference Books:</b>	
1.	Dr.B.Kuberudu& T.V. Ramana : Managerial Economics and Financial anaysis, HimalayaPublishing House, 2013
2.	Varshney R.L, K.L Maheswari, Managerial Economics, S. Chand & Company Ltd, 2014
3.	Shashi K. Gupta & R.K. Sharma Management Accounting, Kalyani Publishers, 2017
4.	Maheswari S.N, An Introduction to Accountancy, Vikas Publishing House Pvt Ltd, 2013

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3101	PC	3	--	--	3	30	70	3 Hrs.
<b>DESIGN OF STEEL STRUCTURES</b>								
(For CE)								
<b>Course Objectives:</b> Students should be able to								
1	Understand fundamental concepts of limit state design of steel structures and design of bolted connection as per IS:800-2007							
2	Understand welded connection, weld specification and design of welded joints as per IS:800-2007							
3	Understand the behavior of the steel structure under tension and design of tension members as per IS:800-2007							
4	Understand the behavior of the steel structure under compression and design of compression members as per IS:800-2007.							
5	Understand the behavior of the steel structure under flexure and design of flexural members as per IS:800-2007.							
<b>Course Outcomes:</b> students will be able to								
S.No	Outcome							Knowledge Level
1	Design bolted connections.							K4
2	Design Welded Connections.							K4
3	Design Tension Members.							K4
4	Design the Compression Members.							K4
5	Design the Beams							K4
<b>SYLLABUS</b>								
<b>Note:</b> All the designs should be taught in the limit state design method as per IS 800-2007".								
<b>UNIT-I (08 Hrs)</b>	Fundamental Concepts of limit state design of structures, Different types of rolled steel sections available to be used in steel structures. Stress – Strain relationship for mild steel. <b>Bolted connections:</b> Behavior of bolted joints, Design strength of ordinary black bolts, high strength friction grip bolts, Simple connections.							
<b>UNIT-II (08 Hrs)</b>	<b>Welded Connections:</b> Introduction, welding processes, Advantages of welding, Types and properties of welds, Types of joints, weld specifications as per IS 800:2007 code provisions, Types of weld defects, Design of lap joints and butt joints subjected to axial load using fillet and butt welds.							
<b>UNIT-III (08 Hrs)</b>	<b>Tension members:</b> Types of tension members, slenderness ratio, displacement of tension members, behaviour of tension members, modes of failure, factors affecting strength of tension members, design of tension members, Lug angles							

<b>UNIT-IV (10 Hrs)</b>	<b>Compression members:</b> Possible failure modes, behaviour of compression members, Effective length, radius of gyration and slenderness of compression members, Allowable stresses in compression, Design of axially loaded compression members, built up compression members with lateral supporting system such as Lacing and Battened.
<b>UNIT-V (06 Hrs)</b>	<b>Beams:</b> Beam types, section classifications, lateral stability of beams, Allowable stress in bending, Shear and Bearing stresses, Effective length of compression flange, laterally supported and unsupported beams.
<b>Text Books:</b>	
1	Design of Steel structures by N. Subramanian, Oxford University Press.
2	Limit State Design of steel structures by S.K. Duggal, McGraw Hill Education Private Ltd.
3	Limit State Design of steel structures – Ramchandra and Virendra Gehlot, Scientific Publishers (India)
<b>Reference Books:</b>	
1	Design of steel structures by K.S. Sai Ram, Pearson Education India.
2	Design of steel structures by Limit State Method as per IS: 800-2007 – S.S. Bhavikatti, IK Intern



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3102	PC	3	--	--	3	30	70	3 Hrs.
<b>SOIL MECHANICS</b>								
(For CE)								
<b>Course Objectives:</b> The objectives of this course are to make the student aware of								
1	Fundamental relationships between different parameters of a soil mass.							
2	Different types of soils and identify their properties.							
3	Processes of compaction and consolidation and apply them to field problems.							
4	Stress distribution, settlement, and strength of different soils in different conditions.							
5	Importance of Soil Mechanics in solving the engineering problems.							
<b>Course Outcomes:</b> Students will be able to								
S.No	Outcome							Knowledge Level
1	Know the fundamental relationships between different parameters of soil mass and classify different types of soils along with identifying their properties							K3
2	Estimate Effective stresses and permeability of soils							K3
3	Estimate stress distribution in soil for different Load conditions							K3
4	Appreciate the processes of compaction and consolidation and apply them to field problems							K3
5	Identify shear strength parameters for different conditions							K3
<b>SYLLABUS</b>								
<b>UNIT-I (10Hrs)</b>	<b>Introduction:</b> Historical development, Soil Formation, Minerals in clays and sand, Soil Structure, Physical properties of Soil: Void ratio, Porosity, Degree of Saturation, Water content, Specific Gravity, weight–volume Relationships, Relative density, Consistency limits: Determination and consistency indices, Activity, Sensitivity and Thixotropy. Mechanical analysis and Soil Classification: Sieve analysis, Stokes law and hydrometer analysis. Unified soil classification, Indian Standard Soil Classification Systems, Field Identification of Soils							
<b>UNIT-II (8Hrs)</b>	<b>Soil Hydraulics:</b> Types of soil water, capillary rise and surface tension, Darcy’s law and its limitations, constant head and variable head permeability tests, Factors effecting Coefficient of permeability, permeability of stratified soils. Total, neutral and effective stresses, Effective Stress Principle, Upward flow conditions, quick sand conditions and critical hydraulic gradient.							

<b>UNIT-III</b> <b>(8Hrs)</b>	<b>Stress Distribution in Soils:</b> Bousinesq's theory for determination of vertical stress, assumptions and validity, rectangular and circular loaded areas, Pressure Bulb and Influence diagrams, westergaards theory, New marks influence chart-construction and use, 2:1 approximate method, contact pressure distribution beneath footings.
<b>UNIT-IV</b> <b>(12Hrs)</b>	<b>Compaction:</b> Mechanism of compaction, Factors effecting compaction: water content, compaction effort, Type of soil. I.S Light and I.S Heavy compaction tests, Effect of compaction on soil Properties, Field compaction: compaction Equipment and Evaluation of field Compaction. <b>Consolidation:</b> Basic Definitions: compression index, coefficient of compressibility and coefficient of volume decrease. Terzaghis one dimensional consolidation theory-assumption, Derivation of differential equation and Solution, Odometer Test, Determination of coefficient of consolidation by time fitting methods, initial compression, primary compression and secondary compression, determination of pre consolidation pressure. Normally consolidated, over consolidated and under consolidated clays.
<b>UNIT-V</b> <b>(12 Hrs)</b>	<b>Shear Strength of Soils:</b> Stress at a point, Mohr circle of stress, Mohr coulomb failure theory, shear parameters, laboratory shear tests – shear box, tri axial and unconfined compression tests, laboratory and field vane shear tests, Sensitivity of clays, Types of shear tests on drainage conditions, shear strength of sands, critical void ratio and dilatancy, Factors affecting s hear strength of clays and sands, Total stress analysis and Effective stress analysis.
<b>Text Books:</b>	
1	Soil Mechanics and Foundation Engineering by K.R. Arora.
2	Basic and Applied Soil Mechanics by Gopal Rajanand A.S.R.Rao.
3	Geotechnical Engineering by P .Purushothama Raj
<b>Reference Books:</b>	
1	Principles of Geotechnical Engineering– BrajaM.Das

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3103	PE	3	--	--	3	30	70	3 Hrs.

### ADVANCED STRUCTURAL ANALYSIS

(For CE)

**Course Objectives:** Student should be able to

1	Analyze Indeterminate Truss by Force method and Energy Method
2	Analyze the continuous beams and Indeterminate Rectangular Portal Frame by Moment Distribution Method.
3	Analyze the continuous beams and Indeterminate Rectangular Portal Frame by Kani's Method.
4	Analyze Determinate and Indeterminate Arches.
5	Analyze Cable system and Determinate and Indeterminate Suspension Bridges.

**Course Outcomes:** Students will be able to

S.No	Outcome	Knowledge Level
1	Analyze the axial forces in the statically indeterminate trusses by Force method and Energy Method.	K4
2	Analyze the member end moments and shears due to applied loads and yielding of supports for continuous beams and statically indeterminate rigid frames by Moment distribution method.	K4
3	Analyze the member end moments and shears due to applied loads and yielding of supports for continuous beams and statically indeterminate rigid frames by Kani's Method.	K4
4	analyze the horizontal thrust and the vertical reactions at the supports, the orthogonal components axial thrust and radial shear and the resultant force at any point for three hinged and two hinged arches.	K4
5	Analyze the shape of the cable, horizontal component of the axial tension in the cable and length of the cable. To determine the shear force and bending moment for three hinged and two hinged stiffening girder.	K4

### SYLLABUS

<b>UNIT-I (08 Hrs)</b>	<p><b>Analysis of statically indeterminate trusses by force method</b></p> <p>Analysis of statically indeterminate trusses (having not more than 7 members and 3 supports) containing (a) external redundant supports (b) internal redundant members using (i) method of consistent deformation of unit load method (ii) Castigliano's theorem – II.</p>
<b>UNIT-II (08 Hrs)</b>	<p><b>Analysis of Statically indeterminate beam and rigid frames by Moment Distribution Method:</b></p> <p>a) Analysis of statically indeterminate three span continuous beams <b>due to applied load</b></p>



	<p>b) Analysis of statically indeterminate three span continuous beams <b>for uneven support settlements.</b></p> <p>c) Analysis of statically indeterminate rigid frames (<b>without</b> sideway and <b>with</b> sideway)</p>
<b>UNIT-III (08 Hrs)</b>	<p><b>Analysis of Statically indeterminate beam and rigid frames by Kani's Method:</b></p> <p>a) Analysis of statically indeterminate three span continuous beams <b>due to applied loads.</b></p> <p>b) Analysis of statically indeterminate three span continuous beams <b>for uneven support settlements.</b></p> <p>c) Analysis of statically indeterminate rigid frames (without sideway and with sideway).</p>
<b>UNIT-IV (10 Hrs)</b>	<p><b>Analysis of Arches</b></p> <p>Introduction, Geometrical Properties, Basic Mechanics, Arch Action, Normal thrust, radial shear and bending moment in three hinged and two hinged parabolic and segmental arches. Moving Loads and Influence Lines on three hinged and two hinged parabolic Arches. Secondary Effects-Temperature effect in two hinged arch, Effects of rib-shortening and Effects of yielding of supports.</p>
<b>UNIT-V (06 Hrs)</b>	<p><b>Cables and Suspension Bridges</b></p> <p>Introduction, Properties of a Suspended cable, Cable subjected to concentrated load and distributed loads with the supports at same and different levels. Support system, Suspension Bridge with three hinged stiffening girders. Suspension Bridge with two hinged stiffening girders.</p>
<b>Text Books:</b>	
1	Statically indeterminate structures – C.K. Wang, Mc Graw Hill Education PVT.LTD
2	Theory of Structures Volume II, S.P Gupta, G.S Pandit, R. Gupta – Tata McGraw-Hill Publishing Company Limited, New Delhi
3	Structural Analysis- T.S. Thandavamoorthy, Oxford University Press, New Delhi
<b>Reference Books:</b>	
1	Basic Structural Analysis, C.S. Reddy, Mc Graw Hill Education(India) PVT.LTD
2	Mechanics of structures Vol. II- S.B.Junnarkar and Dr.H.J.shah, Charotar Publishing House.
3	Structural analysis – Devdas Menon, Narosa Publishing House PVT.LTD

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3104	PE	3	--	--	3	30	70	3Hrs.

## REMOTE SENSING AND GIS APPLICATIONS

(For CE)

### Course Objectives:

- |   |  |
|---|--|
| 1 | To introduce the fundamentals of remote sensing data acquisition.                                |
| 2 | To familiarize with the structure and function of computer-based Geographic Information Systems. |
| 3 | To demonstrate the multidisciplinary nature of Geo informatics applications.                     |

### Course Outcomes: Students will be able to

S.No	Outcome	Knowledge Level
1	Relate the scientific theories to the interaction of electromagnetic spectrum with terrestrial matter.	K2
2	Identify different types of satellites, sensor platforms and choose appropriate remote sensing data products for mapping, monitoring, and management applications.	K2
3	Interpret processed satellite images and outputs for extracting relevant information	K2
4	Structure the concept of a spatial decision support system in its analog and digital forms.	K2
5	Explain the applications of Geo informatics in various fields of human Endeavour	K2

## SYLLABUS

<b>UNIT-I (8 Hrs)</b>	<b>Introduction to Remote Sensing:</b> Introduction, Basic components of remote sensing, electromagnetic radiation & electromagnetic spectrum and its interaction with atmosphere, energy interaction with the earth surfaces, Sensors: types and characteristics, passive sensor, active sensor, Platforms: air borne remote sensing & space borne remote sensing.
<b>UNIT-II (8Hrs)</b>	<b>Image Analysis:</b> Introduction, elements of visual interpretations, Digital Image Processing-Image pre processing, Image rectification, Image enhancement, Image classification: Supervised classification, Unsupervised classification.
<b>UNIT-III (8Hrs)</b>	<b>Introduction to Geographic Information System (GIS):</b> Introduction, key components, application areas of GIS, Spatial data models: Raster data models, Vector data models, Raster versus Vector, Data input methods, Map projections.
<b>UNIT- IV (8Hrs)</b>	<b>Spatial Analysis:</b> 2D: Overlay Analysis – Applications, Network Analysis – Applications – 3D: Digital Elevation Model, Digital Surface Model, Digital Terrain Model– Applications in Area, Volume calculations and scenario planning.

<b>UNIT-V (8Hrs)</b>	<b>RS and GIS applications:</b> Land Cover and Land Use, Agriculture, Forestry, Geology, Geomorphology, Urban applications Flood zoning and mapping, Ground water prospects and Potential Recharge Zones, Watershed Management. Environmental Impact Assessment.
<b>Text Books:</b>	
1	Remote Sensing and GIS by Basu deb Bhatta, Oxford University Press
2	Remote Sensing and Geographical Information Systems by M. Anji Reddy, BS Publications
<b>Reference Books:</b>	
1	Principles of Geographical Information Systems by Peter A Burrough and Rachel A. Mc. Donnel, Oxford Publications
2	Remote Sensing and Image Interpretation, Lillesand, T.M, R.W. Kiefer and J.W. Chipman, 7th Edition (2015), Wiley India Pvt. Ltd., New Delhi



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3105	PE	3	-	--	3	30	70	3 Hrs.

## ENVIRONMENTAL IMPACT ASSESSMENT

(For CE)

### Course Objectives:

1	To introduce environment clearance as a key regulatory mechanism for balancing development and environment
2	To outline the structure and flow of environmental impact assessment
3	To illustrate the methods and methodologies used for quantifying and qualifying impacts
4	To emphasize the role of computational methods in predicting impacts
5	To familiarize the concepts of EIA through case studies.

### Course Outcomes: students will be able to

S.No	Outcome	Knowledge Level
1	Explain the importance of environmental clearance in regulating pollution	K2
2	Relate the various steps in EIA process to the construction and operation of projects	K2
3	Discuss the methods and methodologies appropriate for various project types	K2
4	Identify appropriate models for assessment of attributes	K2
5	Interpret the environmental clearances given by MOEFCC based on case studies.	K2

## SYLLABUS

<b>UNIT-I (08 Hrs)</b>	EIA and EIS concepts – Elements of EIA – Guidelines for the preparation of EIS – Governmental policies for environmental protection.
<b>UNIT-II (06 Hrs)</b>	Environmental attributes – air, water, soil, noise, ecological, social, economical, cultural, human and aesthetic aspects – Environmental indices
<b>UNIT-III (06 Hrs)</b>	Methodology for the identification of impacts – Criteria for the selection of methods – Description of methodologies- Ad hoc, Checklist, Overlaying, Matrix and Network methods
<b>UNIT-IV (10 Hrs)</b>	Prediction and Assessment of Impacts on – air, water, soil, noise, ecological, social, economic, cultural, human environments and aesthetic aspects, computational models
<b>UNIT-V (06 Hrs)</b>	Review of Environmental Impact Statement – Cost benefit analysis – Measures for environmental impact mitigation and control - Case studies.

### Text Books

1.	Environmental Impact assessment by Anji Reddy. BSP Books PVT Ltd
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2.	Environmental Impact Assessment Methodologies by Y. Anjaneyulu and Valli Manikkam. BSP Books PVT Ltd.
<b>Reference Books:</b>	
1.	Environmental Impact Analysis by Canter. McGraw-Hill
2.	<a href="http://www.environmentclearance.nic.in">www.environmentclearance.nic.in</a>
3.	<a href="https://onlinecourses.nptel.ac.in">https://onlinecourses.nptel.ac.in</a>



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3106	PE	3	--	--	3	30	70	3 Hrs.

## PAVEMENT MATERIALS

(For CE)

### Course Objectives:

1	To learn about the characteristics of subgrade soil.
2	To learn about the characteristics of road aggregates.
3	To learn about the characteristics of paving grade bitumen.
4	To learn about the characteristics of bitumen mixes.
5	To learn about the characteristics of cement used in road construction.

### Course Outcomes: students will be able to

S.No	Outcome	Knowledge Level
1	Characterize sub grade soil.	K2
2	Characterize road aggregates.	K2
3	Characterize paving grade bitumen.	K2
4	Design bitumen mixes.	K4
5	Characterize cement used in road construction.	K3

## SYLLABUS

<b>UNIT-I (6Hrs)</b>	<b>Sub-grade Soil:</b> Soil Classification; Index & Engineering properties of soil, Properties of sub-grade; Mechanical response of soil; A critical look at the different laboratory and in-situ procedures for evaluating the mechanical properties of soils viz CBR, Plate Load test, resilient modulus, DCPT, Suitability of different type of soil for the construction of highway embankments and pavement layers; Field compaction and control.
<b>UNIT-II (6Hrs)</b>	<b>AGGREGATES:</b> Origin, classification, requirements, properties and testson road aggregates, concepts of size and gradation – design gradation, maximum aggregate size, aggregate blending by different methods to meet specifications.
<b>UNIT-III (8Hrs)</b>	<b>BITUMEN:</b> Origin, preparation, properties and chemical constitution of bituminous road binders; requirements. <b>BITUMINOUS EMULSIONS AND CUTBACKS</b> - Preparation, characteristics, uses and tests. Adhesion of Bituminous Binders to Road Aggregates: Adhesion failure, mechanism of stripping, tests and methods of improving adhesion.
<b>UNIT-IV (8Hrs)</b>	<b>BITUMINOUS MIXES:</b> Mechanical properties, dense and open textured mixes, flexibility and brittleness, (no Hveem Stabilometer & Hubbar – Field Tests) bituminous mix, design methods using Rothfuch’s Method only and specification, Marshal mixed design criteria- voids

	in mineral aggregates, voids in total mix, density, flow, stability, percentage voids filled with bitumen.
<b>UNIT-V (8 Hrs)</b>	<b>Cement and Cement Concrete Mix:</b> Types of cements and basic properties; Quality tests on cement; Tests on cement concrete including compressive strength, flexural strength, modulus of elasticity and fatigue properties.
<b>Text Books:</b>	
1	Das, A. And Chakroborty, P. Principles of Transportation Engineering, 1st Edition, PHI Publication.
<b>Reference Books:</b>	
1	Atkins, N. Harold, Highway Materials, Soils and Concretes, Fourth Edition, 2002, Prentice-Hall.
2	Kerbs Robert D. and Richard D. Walker, Highway Materials, McGraw-Hill, 1971.
3	Relevant IRC and IS Codes of Practices (Separate List will be given).



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3107	PC	--	--	3	1.5	15	35	3 Hrs.
<b>HIGHWAY MATERIALS TESTING LAB</b>								
(For CE)								
<b>Course Objectives:</b> Student shall be able to								
1	Develop the testing skills of the road aggregates.							
2	Impart the knowledge on the properties of bitumen.							
<b>Course Outcomes:</b> After the completion of the course students will be able to								
S.No	Outcome							Knowledge Level
1	Characterize the highway aggregates.							K4
2	Evaluate the quality of Bitumen							K4
<b>SYLLABUS</b>								
<b>LIST OF EXPERIMENTS</b>								
1	Determine the strength of the aggregates by using the Aggregate Crushing Value Test.							
2	Determine the toughness of the aggregate by using the Aggregate Impact Value Test.							
3	Determine the flakiness index of the given aggregate sample.							
4	Determine the elongation index of the given aggregate sample.							
5	Determine the Attrition value of a given aggregate sample.							
6	Determine the Abrasion value of a given aggregate sample.							
7	Determine the Specific gravity & Water absorption values for a given aggregate sample.							
8	Determine the Penetration value of a given bitumen sample.							
9	Determine the Softening point value for a given bitumen sample.							
10	Determine the Flash & fire point of a given bituminous material sample.							
11	Determine the Ductility value of a given bituminous material sample.							
12	Testing on Bituminous Mixes: Bitumen Extraction Test, Marshal Stability Test (Demonstration)							
<b>Reference Books:</b>								
1	Lab manual in High way Engineering by Ajay.K.Duggal & Vijay .P.Puri, New Age publications, New Delhi.							
2	Lab Manual prepared by Department of Civil Engineering, S.R.K.R Engineering College.							



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3108	PC	--	--	3	1.5	15	35	3 Hrs.
<b>COMPUTER APPLICATIONS IN CIVIL ENGINEERING (CACE) LAB</b>								
(For CE)								
<b>Course Objectives:</b>								
1	Understand the purpose of computer applications in civil engineering.							
2	Analyze and design the structures using various software.							
<b>Course Outcomes:</b> Students will be able to								
S.No	Outcome							Knowledge Level
1	Develop a program which are necessary to classify and evaluate the values							K4
2	Develop an excel sheet for the design of structural elements.							K4
3	Model and analyze the beams and plane frames using STAAD							K4
<b>SYLLABUS</b>								
<b>Module 1</b>	<b>Introduction</b> Introduction - Various software that are used in Civil Engineering based on their purpose - Drafting - AutoCAD - Coding - C Language- Excel - Analysis and design- FEM based software (Like STAAD,SAP,ETABS)							
<b>Module 2</b>	<b>Development and Execution of Programs in C-language</b> <ul style="list-style-type: none"> <li>● Create a program to determine the bending moment and shear force for uniformly distributed load on various beams.</li> <li>● Create a program to classify a soil sample based on the given data.</li> <li>● Create a program to determine the Darcy's friction factor for a circular pipe.</li> <li>● Create a program to estimate the population for the year by arithmetic increase method and geometric increase method.</li> </ul> Create a program to convert a whole circle bearing to reduced bearing							
<b>Module 3</b>	<b>Formulation of design sheets in Excel.</b> <ul style="list-style-type: none"> <li>● Create a excel sheet to design a one way slab for the given uniform distributed loads.</li> <li>● Create a excel sheet to design a singly reinforced beam.</li> </ul>							
<b>Module 4</b>	<b>Analysis and Design of RCC elements.</b> <ul style="list-style-type: none"> <li>● Analysis and design of a plane frame.</li> <li>● Analysis and design of beam with various supports.</li> </ul>							
<b>Text Books</b>								
1.	Balaguruswamy. E "Object –Oriented Programming in C", Tata McGraw Hill. Excel: Quick start guide from beginner to expert							

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3109	SOC	1	--	2	2	--	50	3 Hrs.
<b>DESIGN OF SPECIAL STRUCTURES</b>								
(For CE)								
<b>Course Objectives:</b> Student shall be able to								
1	Understand Concrete Special structures and their functions							
2.	Understand Steel Special structures and their functions							
<b>Course Outcomes:</b> After the completion of the course student will be able to								
S.No	Outcome							Knowledge Level
1.	Design concrete Slab culvert, Grid Slab and Water Tanks							K6
2.	Design Steel Girders, Grillage Foundation and Roof trusses							K6
<b>SYLLABUS</b>								
<b>LIST OF EXPERIMENTS</b>								
1	Design and drawing of Slab Culvert							
2	Design and drawing of Grid Slab							
3	Design and drawing of Elevated Concrete water Tanks							
4	Design and drawing of Gantry Girder							
5	Design and drawing of Grillage foundation							
6	Design and drawing of Roof Trusses							
<b>Reference Books:</b>								
1	Reinforced concrete design by S. Unnikrishna Pillai & Devdas Menon, Tata Mc. Graw Hill, New Delhi.							
2	Reinforced concrete Limit state design by Ashok K. Jain, Nem Chand & Bros, Roorkee.							
3	Limit State Design of steel structures – Ramchandra and Virendra Gehlot, Scientific Publishers (India)							
4	Design of steel structures by Limit State Method as per IS: 800-2007 – S.S. Bhavikatti, IK Intern							

Code	Category	L	T	P	C	I.M	E.M	Exam
B20MC3101	MC	2	--	--	--	--	--	3 Hrs.
<b>EMPLOYABILITY SKILLS</b>								
(Common to Civil, EEE & Mech)								
<b>Part-A: Verbal Ability</b>								
<b>Course Objectives:</b>								
1.	To introduce concepts required in framing grammatically correct sentences and identifying errors While using Standard English.							
2.	To familiarize the learner with high frequency words as they would be used in their professional career.							
3.	To inculcate logical thinking in order to frame and use data as per the requirement							
4.	To acquaint the learner of making a coherent and cohesive sentences and paragraphs for composing a written discourse.							
5.	To familiarize students with soft skills and how it influences their professional grow.							
<b>Course Outcomes:</b> The students will be able to								
S.No	Outcome							Knowledge Level
1	Detect grammatical errors in the text/sentences and rectify them while answering their competitive/company specific tests and frame grammatically Correct sentences while writing.							K3
2	Answer questions on synonyms, antonyms and other vocabulary-based Exercises while attempting CAT, GRE, GATE and other related tests.							K3
3	Use their logical thinking ability and solve questions related to analogy, Syllogisms, and other reasoning-based exercises.							K3
4	Choose the appropriate word/s/phrases suitable to the given context in order to make the sentence/paragraph coherent.							K3
<b>SYLLABUS</b>								
<b>UNIT-I</b>	Spotting Errors, Sentence Improvement							
<b>UNIT-II</b>	Synonyms, Antonyms, Frequently Confused Words, Foreign Phrases, Idioms and Phrasal Verbs, Collocations.							
<b>UNIT-III</b>	Foreign Phrases, Idioms and Phrasal Verbs, Collocations, Analogies, Odd One Out							
<b>UNIT-IV</b>	Sentence completion, Sentence Equivalence, Close Test							
<b>UNIT-V</b>	Reading Comprehension, Para Jumbles							

<b>Text Books:</b>	
1.	Oxford Learners,, Grammar–Finder by John Eastwood, Oxford Publication.
2.	RS Agarwal books on objective English and verbal reasoning
3.	English Vocabulary in Use-Advanced, Cambridge University Press
4.	Collocations In Use, Cambridge University Press
5.	Soft Skills & Employability Skills by Samina Pillai and Agna Fernandez, Cambridge University Press India Pvt .Ltd.
6.	Soft Skills, by Dr.K.Alex, S. Chand & Company Ltd., New Delhi

<b>Reference Books:</b>	
1.	English Grammar in Use by Raymond Murphy, CUP
2.	Websites: Indiabix,800score, official CAT, GRE and GMAT sites
3.	Material from IMS, Career Launcher and Time institutes for competitive exams
4.	The Art of Public Speaking by Dale Carnegie
5.	The Leader in You by Dale Carnegie
6.	Emotional Intelligence by Daniel Golman
7.	Stay Hungry Stay Foolish by Rashmi Bansal
8.	I have a Dream by Rashmi Bansal.

**Part-B: Quantitative  
Aptitude-I**

<b>Course Objectives:</b>	
1.	To familiarize students with basic problems on numbers and ratios problems.
2.	To enrich the skills of solving problems on time, work, speed, distance and also Measurement of units.
3.	To enable the students to work efficiently on percentage values related to shares, profit and Loss problems.
4.	To inculcate logical thinking by exposing the students to reasoning related questions.
5.	To inculcate logical thinking by exposing the students to reasoning related questions.

<b>Course Outcomes:</b>		
<b>S.No.</b>	<b>Course Outcome</b>	<b>Knowledge Level</b>
1.	The students will be able to perform well in calculating on number problems and various units of ratio concepts	K3
2.	The students will be able to solve problems on time and distance and units related solutions	K3
3.	The students will become adept in solving problems related to profit and loss, in specific, quantitative ability	K3
4.	The students will present themselves well in the recruitment process using analytical and logical skills which he or she developed during the course as they are very important for any person to be placed in the	K3

	industry	
5.	The students will learn to apply Logical thinking to the problems of Syllogisms and be able to effectively attempt competitive examinations like CAT, GRE, GATE for further studies	K3
<b>SYLLABUS</b>		
<b>UNIT-I</b>	Numbers, LCM and HCF, Chain Rule, Ratio and Proportion Importance of different types of numbers and uses of them: Divisibility tests, finding remainders in various cases, Problems related to numbers, Methods to find LCM, Methods to find HCF, applications of LCM, HCF. Importance of chain rule, Problems on chain rule, Introducing the concept of ratio in three Different methods, Problems related to Ratio and Proportion	
<b>UNIT-II</b>	Time and work, Time and Distance Problems on manpower and time related to work, Problems on alternate days, Problems on hours of working related to clock, Problems on pipes and cistern, Problems on combination of the some or all the above, Introduction of time and distance, Problems on average speed, Problems on Relative speed, Problems on trains, Problems on boats and streams, Problems on circular tracks, Problems on polygonal tracks, Problems on races.	
<b>UNIT-III</b>	Percentages, Profit Loss and Discount, Simple interest, Compound Interest, Partnerships, shares and dividends. Problems on percentages-Understanding of cost price, selling price, marked price, discount, percentage of profit, percentage of loss, percentage of discount, Problems on cost price, selling price, market price, discount. Introduction of simple interest, Introduction of compound interest, Relation between simple interest and compound interest, Introduction of partnership, Sleeping partner concept and problems, Problems on shares and dividends, and stocks.	
<b>UNIT-IV</b>	Introduction, number series, number analogy, classification, Letter series, ranking, directions Problems of how to find the next number in the series, Finding the missing number and related sums, Analogy, Sums related to number analogy, Ranking of alphabet, Sums related to Classification, Sums related to letter series, Relation between number series and letter series, Usage of directions north, south, east, west, Problems related to directions north, south, east, west.	
<b>UNIT-V</b>	Data sufficiency, Syllogisms Easy sums to understand data sufficiency, Frequent mistakes while doing data sufficiency, Syllogisms Problems.	
<b>Text Books:</b>		
1.	Quantitative aptitude by RS Agarwal	
2.	Verbal and nonverbal reasoning by RS Agarwal	
3.	Puzzles to puzzle you by shakunatala devi.	

<b>References:</b>	
1.	Barrons by Sharon Welner Green and IraK Wolf (Galgotia Publications pvt. Ltd.)
2.	Websites: m4maths, Indiabix, 800score, official CAT, GRE and GMAT sites
3.	Material from IMS, Career Launcher and Time,, institutes for competitive exams
4.	Books for CAT by Arun sharma.
5.	Elementary and Higher algebra by HS Hall and SR Knight.
<b>Websites:</b>	
1.	<a href="http://www.m4maths.com">www.m4maths.com</a>
2.	<a href="http://www.Indiabix.com">www.Indiabix.com</a>
3.	<a href="http://www.800score.com">www.800score.com</a>
4.	Official GRE site
5.	Official GMAT site





## SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JNTUK, Kakinada), (Recognized by AICTE, New Delhi)

UG Programmes CE,CSE,ECE,EEE,IT & ME are Accredited by NBA

CHINNA AMIRAM (P.O):: BHIMAVARAM :: W.G.Dt., A.P., INDIA :: PIN: 534 204

Regulation: R20		III / IV - B.Tech. II - Semester							
CIVIL ENGINEERING									
SCHEME OF INSTRUCTION & EXAMINATION (With effect from 2020-21 admitted Batch onwards)									
Course Code	Course Name	Category	Cr	L	T	P	Int. Marks	Ext. Marks	Total Marks
B20CE3201	Water Resources Engineering	PC	3	3	0	0	30	70	100
B20CE3202	Foundation Engineering	PC	3	3	0	0	30	70	100
B20HS3202	Universal Human Values-2 : Understanding Harmony	HS	3	3	0	0	30	70	100
#PE-II	Professional Elective -II	PE	3	3	0	0	30	70	100
#OE-II	Open Elective-II	OE	3	3	0	0	30	70	100
B20CE3207	Soil Mechanics Lab	PC	1.5	0	0	3	15	35	50
B20CE3208	Concrete Technology Lab	PC	1.5	0	0	3	15	35	50
B20CE3209	Building Planning and Drawing Lab	PC	1.5	0	0	3	15	35	50
B20HS3203	Soft Skills (Skill Oriented Course)	SOC	2	1	0	2	--	50	50
B20HS3204	*Gender Sensitization	HS	0	2	0	0	--	--	--
<b>TOTAL</b>			<b>21.5</b>	<b>18</b>	<b>0</b>	<b>11</b>	<b>195</b>	<b>505</b>	<b>700</b>

	Course Code	Course
#PE-II	B20CE3203	Advanced Steel Structures
	B20CE3204	Air pollution and Control
	B20CE3205	Urban Hydrology
	B20CE3206	Geosynthetics and its applications
#OE-II	Student has to study one Open Elective offered by CSE or ECE or EEE or IT or ME or S&H from the list enclosed.	

**\*Note:** Gender Sensitization is a Self-Learning noncredit Audit Course

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3201	PC	3	--	--	3	30	70	3 Hrs.
<b>WATER RESOURCES ENGINEERING</b>								
(For CE)								
<b>Course Objectives:</b> Student should be able to								
Student may know the Major hydrologic components & apply key concepts to several practical areas of engineering hydrology & related design aspects, aquifer parameters & yield of wells, surface & subsurface investigation to locate ground water, storage capacity & life of reservoirs, the irrigation needs of crops.								
<b>Course Outcomes:</b> Students will be able to								
S.No	Outcomes:							Knowledge Level
1	Choose major hydrologic components & apply key concepts to several practical areas of engineering hydrology & related design aspects.							K3
2	Calculate aquifer parameters & yield of wells.							K3
3	Carry out surface and Subsurface investigation to locate ground water							K3
4	Calculate storage capacity & life of reservoirs.							K3
5	Assess the irrigation needs of crops.							K3
<b>SYLLABUS</b>								
<b>UNIT-I (12Hrs)</b>	<b>Hydrology:</b> Hydrology in water resources development, Applications of Hydrology & Hydrological cycle, Precipitation -Types, Measurement of rainfall; Average depth of rainfall over an area, Mean annual rainfall, Analysis of Rainfall Data – Consistency of rainfall record, Double mass curve. Infiltration – Factors affecting and its determination, Infiltrimeters; Evaporation and Evapo - transpiration – PanEvaporation							
<b>UNIT-II (10Hrs)</b>	<b>Hydrological Aspects:</b> Runoff –Factors affecting Runoff, Methods of determination of Runoff, Hydrograph Analysis, Base flow separation, Unit Hydrographs, Hydrograph of different durations, Applications of Unit Hydrograph; S-hydrograph.							
<b>UNIT-III (10Hrs)</b>	<b>Canal Systems:</b> Classification of irrigation canals – Canal alignment, Design of unlined canals, Regime theories – Kennedys and Lacey's theories, Design problems –Water logging – Causes and control –Canal lining – methods, Design of lined canals. <b>Storage Works:</b> Classification of dams, Factors governing selection of types of dam, Selection of site. <b>Gravity Dams:</b> Forces acting on a gravity dam, Modes of failure – Elementary and Practical profiles, Openings in dams – Galleries, Foundation treatment of gravity dam.							



	<p><b>Earth Dams:</b> Types, Foundation for earth dams, Causes for failure of earth dams– Seepage control through body and foundation.</p> <p><b>Spillways:</b> Essential requirements, Components, Types of spillways and their working, Energy dissipation below spill way, Use of hydraulic jump as energy dissipater – USBR and IS stilling basins.</p>
<b>UNIT-IV (10Hrs)</b>	<p><b>Reservoir Planning:</b> Types of developments – Investigations for reservoir planning, Selection of site for a reservoir, Zones of storage in a reservoir; Purpose of reservoir, Reservoir regulation, Reservoir yield, Mass curve and Demand curve, Determination of reservoir capacity, Yield from a reservoir of given capacity; Apportionment of total cost of a Multi Purpose project, Reservoir Losses –Measures to reduce evaporation loss in reservoirs sedimentation, Control of reservoir sedimentation.</p>
<b>UNIT-V (8Hrs)</b>	<p><b>Irrigation:</b> Definition of irrigation, Types of irrigation systems – Direct and Indirect, Lift and Inundation irrigation Systems, Methods of irrigation – Surface and Sprinkler methods, Trickle or Drip Irrigation, Irrigation efficiencies — Water requirements of crops, Duty, Delta and Base period – Their relationship, Factors affecting duty and methods of improving duty, Consumptive use of water-Determination of evapo transpiration, Assessment of irrigation water charges.</p>
<b>Text Books:</b>	
1.	Irrigation and Water Power Engineering, Punmia, B.C. and P.B.B. Lal, Laxmi Publications Pvt. Ltd. 1980
2.	Irrigation and Water Resources & Water Power, Modi, P.N., Standard Book House.
3.	Irrigation and Hydraulic structures, Garg, S.K., Khanna Publishers.
<b>Reference Books:</b>	
1.	Handbook of Applied Hydrology, Chow, V.T., McGraw-Hill Book Co.
2.	Impacts of climate change and climate variability on hydrological regimes, Jan C. van Dam, Cambridge University Press.
3.	Hydrology: Principles, Analysis and Design, Raghunath, H.M., New Age International

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3202	PC	3	--	--	3	30	70	3 Hrs.

## FOUNDATION ENGINEERING

(For CE)

**Course Objectives:** The objectives of this course are to make the student aware of

1	Different techniques of soil exploration.
2	Various methods for estimating bearing capacity of different types of foundations.
3	Estimating Load capacity of single piles and groups of piles.
4	Settlement analysis of foundations.
5	Theoretical aspects of well foundations.
6	Concepts of stability of finite and infinite slopes.
7	Earth pressures on retaining walls by Rankine's and Coulomb's theories

**Course Outcomes:** Students will be able to

S.No	Outcome	Knowledge Level
1	Plan a detailed soil exploration programme	K2
2	Apply various methods for estimating bearing capacity of different types of foundations.	K3
3	Estimate load capacity of single piles and groups of piles and know the theory aspects of well foundations	K3
4	Determine the stability of finite and infinite slopes.	K3
5	Calculate earth pressures on retaining walls using Rankine's and Coulomb's theories	K3

## SYLLABUS

<b>UNIT-I (6 Hrs)</b>	<b>Sub soil Exploration:</b> Methods of sub soil exploration Direct, semi direct and in direct methods, Soundings by Standard, Dynamic cone and static cone penetration tests, Types of Boring, Types of samples, Criteria for undisturbed samples, Transport and preservation of samples, Bore logs, planning of exploration programmes, report writing.
<b>UNIT-II (12Hrs)</b>	<b>Shallow Foundations:</b> Factors effecting location of foundation and design considerations of shallow foundations. <b>Bearing Capacity:</b> Safe bearing capacity and allowable bearing pressure, General and local shear failures, Terzaghi's bearing capacity equations its modifications for square, rectangular and circular foundations, Factors affecting bearing capacity of Soil, Effect of water table on bearing capacity, IS Code method for Bearing capacity of footings, Allowable bearing pressure based on N-values, Field plate load tests , Settlement Analysis of shallow foundations.

<b>UNIT-III (12Hrs)</b>	<b>Pile Foundations:</b> Types, Construction, load carrying capacity of single piles in sands and clays( $\alpha$ -method) Dynamic Formula, Static formula, Pile load tests, Load carrying capacity of pile groups, Settlement. Analysis of pile foundations. <b>Caissons:</b> Type sofcaissons, pneumaticcaissons, Different shapes of well foundations, Relative advantages and disadvantages, Different Components of well and their function, Grip length, problems in well sinking and remedial measures.
<b>UNIT-IV (10Hrs)</b>	<b>Stability Analysis of Slopes:</b> Infinite and Finite Slopes, Stability Analysis of Infinite Slopes, different factors of safety, Types of Slope Failures – Toe, slope and Base failure, Stability Analysis of Finite slopes – Swedish Circle method, Friction Circle method, Fellenius method for location of Critical Slip Circle, Taylor’s stability number.
<b>UNIT-V (10Hrs)</b>	<b>Earth Pressure:</b> Types of Earth pressure, Rankine’s Active and passive earth pressure, Smooth Vertical wall with horizontal and inclined backfills. Coloumb’s wedge theory, Culmans active earth pressure.
<b>Text Books</b>	
1	Basic and Applied Soil Mechanics by Gopal Ranjan and A. S. R. Rao
2	Foundation Analysis and Design –J. E. Bowles.
3	Soil Mechanics and Foundation Engineering–By K. R. Arora
<b>Reference Books:</b>	
1	Principles of Foundation Engineering- Braja M. Das
2	Foundation Engineering-P. C. Verghese

Estd. 1980

AUTONOMOUS

Code	Category	L	T	P	C	I.M	E.M	Exam
B20HS3202	HS	3	--	--	3	30	70	3 Hrs.
<b>UNIVERSAL HUMAN VALUES-2 : UNDERSTANDING HARMONY</b>								
(Common to CE, ECE, & EEE)								
<b>Course Objectives:</b> The objectives of this course are to make the student aware of								
1	Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.							
2	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence							
3	Strengthening of self-reflection.							
4	Development of commitment and courage to act.							
<b>Course Outcomes:</b>								
S.No	Outcome							Knowledge Level
1	Students are expected to become more aware of themselves, and their surroundings (family, society, nature)							K2
2	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.							K2
3	They would have better critical ability.							K2
4	They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).							K2
5	It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.							K3
<b>SYLLABUS</b>								
<b>UNIT-I (10 Hrs)</b>	<b>Course Introduction</b> - Need, Basic Guidelines, Content and Process for Value Education Purpose and motivation for the course, recapitulation from Universal Human Values-I Self-Exploration–what is it? - Its content and process; ‘Natural Acceptance’ and Experiential Validation- as the process for self-exploration Continuous Happiness and Prosperity- A look at basic Human Aspirations Right understanding, Relationship and Physical Facility- the basic requirements for fulfillment of aspirations of every human being with their correct priority Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario Method to fulfil the above human aspirations: understanding and living in harmony at various levels.							
<b>UNIT-II (8Hrs)</b>	<b>Understanding Harmony in the Human Being</b> - Harmony in Myself! Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’ Understanding the needs of Self (‘I’) and ‘Body’ - happiness and physical facility Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer) Understanding the							

	characteristics and activities of 'I' and harmony in 'I' Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail; Programs to ensure Sanyam and Health.
<b>UNIT-III (8Hrs)</b>	<b>Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship</b> Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship Understanding the meaning of Trust; Difference between intention and competence Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.
<b>UNIT-IV (8Hrs)</b>	<b>Understanding Harmony in the Nature and Existence - Whole existence as Coexistence</b> Understanding the harmony in the Nature Interconnectedness and mutual fulfillment among the four orders of nature recyclability and self regulation in nature Understanding Existence as Co-existence of mutually interacting units in all pervasive space Holistic perception of harmony at all levels of existence.
<b>UNIT-V (8Hrs)</b>	<b>Implications of the above Holistic Understanding of Harmony on Professional Ethics</b> Natural acceptance of human values Definitiveness of Ethical Human Conduct Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems. Case studies of typical holistic technologies, management models and production systems Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions and organizations
<b>Text Books</b>	
1	Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010
<b>Reference Books:</b>	
1	Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999.
2	Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3	The Story of Stuff (Book).
4	The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi

5	Small is Beautiful - E. F Schumacher
6	Slow is Beautiful - Cecile Andrews
7	Economy of Permanence - J C Kumarappa
8	Bharat Mein Angreji Raj – Pandit Sunderlal
9	Rediscovering India - by Dharampal
10	Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
11	India Wins Freedom - Maulana Abdul Kalam Azad
12	Vivekananda - Romain Rolland (English)



**SRKR**  
ENGINEERING COLLEGE  
AUTONOMOUS

Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3203	PE	3	--	--	3	30	70	3 Hrs.
<b>ADVANCED STEEL STRUCTURES</b>								
(For CE)								
<b>Course Objectives:</b> Student should be able to								
1	Understand the design of columns bases and eccentric shear connections.							
2	Understand various components of a plate girder, design components of a plate girder by using IS code.							
3	Understand the designing of elevated circular steel tanks in working stress method							
4	Understand the specification of Plate girder bridge,							
5	Understand types and design of bearings.							
<b>Course Outcomes:</b> Students will be able to								
S.No	Outcome							Knowledge Level
1	Determine the size and thickness of the slab base, gusset base and eccentric connections. Design of beam-column connections subjected to eccentric shear connections.							K4
2	Design components of a plate girder with and without stiffeners by using IS: 800-2007 code							K4
3	Design of circular water tank in working stress method.							K4
4	Design of deck type Plate girder bridges							K4
5	Design of end bearings							K4
<b>SYLLABUS</b>								
Note: All the designs should be taught in the limit state design method as per IS 800-2007".								
<b>UNIT-I (08 Hrs)</b>	<b>Column bases and Foundations:</b> Allowable stress in bearing, Slab base, Gusset base. Eccentric shear connections: Introduction, beam-columns connections, connections subjected to eccentric shear: welded seat connections: unstiffened seat angle connection and stiffened seat angle connections.							
<b>UNIT-II (08 Hrs)</b>	<b>Plate Girders (Welded):</b> Components of a plate girder, Economical depth, proportioning of web and flanges, shear buckling resistance of web by simple post critical and tension field methods, connection of flange angles to web and flange angles to flange plates. Web stiffeners: Design of bearing stiffeners. End panel design, design of intermediate stiffeners, connections							
<b>UNIT-III (08 Hrs)</b>	<b>Water tanks:</b> Introduction, permissible stresses in water tanks, Design of circular steel water tank: forces acting over the tanks, stresses in elevated circular tanks, stresses in segmental and spherical bottoms, stresses in conical bottom, Design of circular girder (ring beam),							

	stagging for circular steel tanks, stresses in columns, wind bracings
<b>UNIT-IV (10 Hrs)</b>	<b>Bridges:</b> Classification, Loadings, Deck type and through type bridges, design of through type Plate girder bridges, design of stringers, cross girders, wind bracings.
<b>UNIT-V (06 Hrs)</b>	<b>Bearings:</b> Introduction, IS code requirements for bearing, Types of bearings-plate bearing Rocker bearing, Roller bearing, Knuckle pin bearing. Design of Rocker bearing and Roller bearing
<b>Text Books:</b>	
1	Design of Steel structures by N. Subramanian, Oxford University Press.
2	Limit State Design of steel structures by S.K.Duggal, McGraw Hill Education Private Ltd.
3	Limit State Design of steel structures – Ramchandra and Virendra Gehlot, Scientific Publishers (India)
<b>Reference Books:</b>	
1	Design of steel structures by K.S.Sai Ram, Pearson Education India.
2	Design of steel structures by Limit State Method as per IS: 800-2007 – S.S. Bhavikatti, IK International Publishing House, Bangalore – 560 001.





Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3204	PE	3	--	--	3	30	70	3 Hrs.

### AIR POLLUTION AND CONTROL

(For CE)

**Course Objectives:** Students are expected to

1	Introduce the problem of air pollution and its effects on environment
2	Learn the important meteorological concepts linked to dispersion of industrial emissions
3	Apprise the deleterious impacts of air pollution on natural and manmade environment
4	Brief the process of preparing emission inventories
5	Discuss the air pollution control technologies applicable to industries

**Course Outcomes:** Student will be able to

S.No	Outcome	Knowledge Level
1	Classify pollutants of atmosphere based on various criteria.	K2
2	Explain the different meteorological conditions and phenomena that influence the dispersion of the pollutants and plume behavior.	K2
3	Summarize the effects of air pollution on plants, animals, human beings and built environment	K2
4	Layout the processes of sampling and monitoring of air pollution	K2
5	Suggest various pollution control equipment's or methods to control emissions	K2

### SYLLABUS

<b>UNIT-I (06 Hrs)</b>	Air Pollution and its definition – Factors influencing air pollution – Classification of pollutants particulates – Gases – sources of pollution– Location of industries - Air qualities standards.
<b>UNIT-II (08 Hrs)</b>	Meteorology – Wind roses – lapse rates – mixing depth – atmospheric dispersion – plume behaviour – accumulation– estimation of pollutants – effective stack height.
<b>UNIT-III (08 Hrs)</b>	Air pollution effects on human beings, animals, plants and materials – Air pollution Episodes in India and Abroad – The role of crop calendar and meteorology in seasonal air pollution episodes in India.
<b>UNIT-IV (10 Hrs)</b>	Air Pollution Sampling and measurement – Ambient air quality monitoring and stack monitoring, collection of particulate and gaseous pollutants: Isokenitic sampling: Ambient air quality survey– Air Pollution Simulation Models
<b>UNIT-V (08Hrs)</b>	Control of air pollution – removal of pollutants – particulate and gaseous – Air pollution control equipment (units) such as settling chamber, cyclones, wet scrubbers/collectors,

	scrubbers, centrifugal scrubbers, spray towers, packed beds, electrostatic precipitators, after burners – absorption – adsorption – diffusion.
<b>Text Books:</b>	
1	Air Pollution and Control Engineering, Y Anjanaeyulu, BS Publications / BSP Books; 2nd edition (1 January 2020)
2	Air Pollution and Control by K.V.S.G. Murali Krishna, University Science Press
<b>Reference Books</b>	
1	Fundamentals of Air Pollution by Dr. B.S.N. Raju, CBS Publishers and Distributors Pvt Ltd (16 August 2018)
2	Air Pollution, M.N.Rao, H.V.N.Rao, 1st Edition, McGraw Hill Education.



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3205	PE	3	--	--	3	30	70	3 Hrs.

## URBAN HYDROLOGY

(For CE)

### Course Objectives:

- |   |   |
|---|---|
| 1 | Appreciate the impact of urbanization on catchment hydrology                                  |
| 2 | Understand the importance of short duration rainfall runoff data for urban hydrology studies. |
| 3 | Learn the techniques for peak flow estimation for storm water drainage system design.         |
| 4 | Understand the concepts in design of various components of urban drainage systems             |
| 5 | Understand the concepts in design of various components of urban drainage systems             |

### Course Outcomes: Students will be able to

S.No	Outcome	Knowledge Level
1	Develop intensity duration frequency curves for urban drainage systems	K4
2	Develop design storms to size the various components of drainage systems	K4
3	Apply best management practices to manage urban flooding	K4
4	Prepare master drainage plan for an urbanized area	K4

## SYLLABUS

<b>UNIT-I (06 Hrs)</b>	<b>Introduction:</b> Urbanisation and its effect on water cycle – urban hydrologic cycle – trends in urbanisation – Effect of urbanisation on hydrology
<b>UNIT-II (08 Hrs)</b>	<b>Precipitation Analysis:</b> Importance of short duration of rainfall and runoff data, methods of estimation of time of concentration for design of urban drainage systems, Intensity-Duration - Frequency (IDF) curves, design storms for urban drainage systems
<b>UNIT-III (08 Hrs)</b>	<b>Approaches to urban drainage:</b> Time of concentration, peak flow estimation approaches, rational method, NRCS curve number approach, runoff quantity and quality, wastewater and storm water reuse , major and minor systems. <b>Elements of drainage systems:</b> Open channel, underground drains, appurtenances, pumping, source control
<b>UNIT-IV (10 Hrs)</b>	<b>Analysis and Management:</b> Stormwater drainage structures, design of stormwater network-Best Management Practices–detention and retention facilities, swales, constructed wetlands, models available for stormwater management
<b>UNIT-V (08Hrs)</b>	<b>Master drainage plans:</b> Issues to be concentrated upon – typical urban drainage master plan, interrelation between water resources investigation and urban planning processes , planning objectives, comprehensive planning , use of models in planning

<b>Text Books:</b>	
1	Manual on Drainage in Urbanised area‘by Geiger W. F., J Marsalek, W. J. Rawls and F. C. Zuidema, (1987 – 2 volumes), UNESCO.
2	Urban Hydrology‘by Hall M J (1984), Elsevier Applied Science Publisher
<b>Reference Books:</b>	
1	Hydrology – Quantity and Quality Analysis‘ by Wanielista M P and Eaglin (1997), Wiley and Sons.
2	Urban Hydrology, Hydraulics and Stormwater Quality: Engineering Applications and Computer Modelling‘ by Akan A.O and R.L. Houghtalen (2006), Wiley International



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3206	PE	3	--	--	3	30	70	3 Hrs.

## GEOSYNTHETICS AND ITS APPLICATIONS

(For CE)

### Course Objectives:

1.	To create an awareness in the field of Geosynthetics
2.	To impart the knowledge on manufacturing, properties and functions of Geosynthetics
3.	To familiarize with the use of Geosynthetics in various civil engineering applications.

### Course Outcomes: Students will be able to

S.No	Outcome	Knowledge Level
1.	Identify the type of Geosynthetics and their relevance in geotechnical field	K2
2.	Select suitable material for manufacturing of various types of Geosynthetics	K3
3.	Utilize the properties of Geosynthetics effectively in designing sustainable solutions	K3
4.	Select the type of Geosynthetics based on their function for its effective utilization	K3
5.	Apply Geosynthetics in various civil engineering applications for safer and economical constructions.	K3

## SYLLABUS

<b>UNIT-I (8 Hrs)</b>	An Overview of Geosynthetic in Geotechnical Engineering: Historical development, Types of geosynthetics: Geotextiles, Geogrids, Geonets, Geomembranes, Geosynthetic clay liners, Geocells, Erosion control products, Geo composites, Geo-others; Recent use in India.
<b>UNIT-II (8 Hrs)</b>	Manufacturing - Materials and Process: Raw materials: polyamide, polyester, polyethylene, polypropylene, poly vinyl chloride; Different type of geosynthetics based on manufacturing - woven, monofilament, multifilament, slit filament, non-woven; Different bonding process: Mechanically bonded, Chemically bonded, Thermally bonded
<b>UNIT-III (12Hrs)</b>	Properties of Geosynthetics: Physical properties, Mechanical properties, Hydraulic properties, Durability.
<b>UNIT-IV (10Hrs)</b>	Functions of Geosynthetics: Reinforcement, Separation, Filtration, Drainage, Barrier, Protection; Suitability of various types of Geosynthetics according to function.
<b>UNIT-V (12 Hrs)</b>	Application of Geosynthetics: Soil Reinforcement: Reinforced soil walls, reinforced embankments, Reinforced soil beds, Pavements; Hydraulic Applications: erosion control, filtration and drainage; Lining

<b>Text Books</b>	
1.	Engineering with Geosynthetics by G.VenkatappaRao and G.V.SSuryanarayanaRaju – Tata McGraw Hill, New Delhi, 1990
2.	An Introduction to Soil Reinforcement and Geosynthetics by G. L. Sivakumar Babu, University Press, 2005.
3.	Geosynthetics – An Introduction by G.V. Rao, Sai Master Geoenvironmental Services Pvt. Ltd. Hyderabad, 2011
4.	Designing with geosynthetics by R. M. Koerner, Pearson Education Inc., 2005
<b>Reference Books:</b>	
1.	Earth Reinforcement and Soil Structures, Jones, C.J.F.P, Butterworth, 1985.
2.	Handbook on Geosynthetics and their applications by Sanjay Kumar Shukla, Thomas Telford, 2002
3.	Construction and Geotechnical Engineering using Synthetic Fabrics by Robert M. Koerner and Josoph P. Welsh. John Willey and Sons, New York.
4.	<a href="https://nptel.ac.in/courses/105/106/105106052/">https://nptel.ac.in/courses/105/106/105106052/</a>
5.	<a href="https://nptel.ac.in/courses/105/101/105101143/">https://nptel.ac.in/courses/105/101/105101143/</a>



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3207	PC	--	--	3	1.5	15	35	3 Hrs.

### SOIL MECHANICS LAB

(For CE)

**Course Objectives:** Students are expected to

1	Identify the physical properties of soil.
2	Identify the types of soil.
3	Identify compaction characteristics and permeability of soil.
4	Identify in-situ characteristics of soil.
5	Determine shear strength of soil.
6	Determine relative density of soil.
7	Know CBR of soil.

**Course Outcomes:** After completion of the course students will be able to

S.No	Outcome	Knowledge Level
1	Identify the physical properties of soil and classify various types of soil.	K4
2	Determine the permeability of soil	K4
3	Determine compaction characteristics of soils and Estimate in-situ density of soil	K4
4	Determine the shear strength parameters of soils by various methods	K4
5	Estimate the California Bearing Ratio (CBR) of a soil	K4
6	Determine the relative density of a coarse-grained soil	K4

### SYLLABUS

#### LIST OF EXPERIMENTS

1	Atterberg limits
2	Field density by Core Cutter method.
3	Field density by Sand replacement method
4	Grain size analysis (Sieve analysis)
5	Hydrometer analysis.
6	Specific gravity by pycnometer /density bottle method.
7	Permeability of soil– Constant head method.
8	Permeability of soil–Variable head method
9	I. S. light/heavy compaction.
10	CBR test/plate bearing test
11	Unconfined compression test
12	Triaxial compression test(u-u test)
13	Direct shear test
14	Vane shear test

15	Relative density
*At least 12 experiments must be done	
<b>Reference Books:</b>	
1	Soil Mechanics and Foundation Engineering by K. R. Arora





Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3208	PC	--	--	3	1.5	15	35	3 Hrs.
<b>CONCRETE TECHNOLOGY LAB</b>								
(For CE)								
<b>Course Objectives:</b> Students are expected to								
1.	Test ingredients of concrete for assessing their physical properties							
2.	Prepare and test concrete for studying fresh and hardened properties							
<b>Course Outcomes:</b> After completion of the course student will be able to								
S.No	Outcome							Knowledge Level
1.	Conduct test and find Physical properties of cement, fine aggregates and coarse aggregates							K4
2.	Determine the values of physical properties and recommend their suitability for concrete production							K4
3.	Understand and determine workability of concrete by slump, compaction factor, flow table and Vee – Bee tests.							K4
4.	Evaluate hardened properties of concrete like compressive strength, split tensile strength and flexural strength							K5
<b>SYLLABUS</b>								
<b>LIST OF EXPERIMENTS</b>								
I	<b>TESTS ON CEMENT</b>							
	1. Fineness of cement 2. Specific gravity of cement 3. Normal consistency of cement 4. Initial and final setting time 5. Compressive strength of cement for different grades of cement							
II.	<b>TESTS ON AGGREGATE</b>							
	6. Specific gravity and unit weight of coarse and fine aggregates 7. Sieve analysis of coarse and fine aggregates and classification as per IS 383. 8. Bulking characteristics of sand							
III.	<b>TESTS ON FRESH CONCRETE</b>							
	9. Workability tests on fresh concrete by using: (a) Slump cone (b) Compaction factor apparatus (c) Flow table (d) Vee-Bee consistometer							
IV	<b>TESTS ON HARDENED CONCRETE</b>							
	10. Strength tests on hardened concrete (a) Compressive strength							

	(b) Split tensile strength (c) Flexural strength
<b>Reference Books:</b>	
1.	Concrete Technology by M.L. Gambhir. – Tata Mc. Graw Hill Publishers, New Delhi
2.	Concrete Technology by M.S.Shetty. – S.Chand& Co.; 2004



Code	Category	L	T	P	C	I.M	E.M	Exam
B20CE3209	PC	0	--	3	1.5	15	35	3 Hrs.

### BUILDING PLANNING AND DRAWING LAB

(For CE)

**Course Objectives:** Students are expected to

- |   |   |
|---|---|
| 1 | Communicate a design idea/concept graphically/ visually                     |
| 2 | Develop Parametric design and the conventions of formal engineering drawing |
| 3 | Produce and interpret 2D & 3D drawings                                      |

**Course Outcomes:** Students will be able to

S.No	Outcome	Knowledge Level
1	Draw the load bearing walls including details of the doors and windows	K4
2	Draw the two storied building including all MEP, Joinery and rebar details.	K4
3	Draw the detailed floor plans and elevation for a building	K4
4	Draw the reinforcement details of typical Beams, columns, slabs and footings	K4
5	Draw the detailing of Trusses	K4
6.	Draw the perspective view of one and two storey buildings	K4

### SYLLABUS

- |     |   |
|-----|---|
| 1.  | Draw the load bearing walls including details of the doors and windows.     |
| 2.  | Draw the two storied building including all MEP, Joinery and rebar details. |
| 3.  | Draw the detailed floor plans and elevations.                               |
| 4.  | Understand the sectional views of a building for RCC framed buildings.      |
| 5.  | Draw the reinforcement details of typical Beams.                            |
| 6.  | Draw the reinforcement details of typical Columns.                          |
| 7.  | Draw the reinforcement details of typical slabs.                            |
| 8.  | Draw the typical reinforcement details of typical Spread footings.          |
| 9.  | Draw the detailing of north light roof structures.                          |
| 10. | Draw the detailing of Trusses.  |
| 11. | Draw the perspective view of one storey building..                          |
| 12. | Draw the perspective view of two storey building.                           |

**Text Books:**

- |    |   |
|----|---|
| 1. | Building Planning and Drawing Book by M. V. Chitawadagi and S.S. Bhavikatti |
| 2. | Building Planning and Drawing by Dr Swamy N Kumara                          |
| 3. | Learning Auto CAD 2010 Volume -1, Auto Desk                                 |

Code	Category	L	T	P	C	I.M	E.M	Exam
B20HS3203	SOC	1	--	2	2	--	50	3Hrs.
<b>SOFT SKILLS</b>								
(Common to CE, EEE, & ME)								
<b>Course Objectives:</b>								
1.	To familiarize students with soft skills and how they influence their professional growth.							
2.	To build/refine the professional qualities/skills necessary for a productive career and to instill Confidence through attitude building.							
<b>Course Outcomes:</b> Students will be able to								
S.No	Outcome							Knowledge Level
1	Apply soft skills in the work place and build better personal and professional relationships making informed decisions.							K3
2	Participate in group discussions/group activities, exhibit team spirit, use language effectively according to the situation, respond to their interviewer/employer with a positive mind, make answers to the questions asked during their technical/personal interviews, exhibit skills required for the different kinds of interviews (stress, technical, HR) that they would face during the course of their recruitment process.							K3
<b>SYLLABUS</b>								
1.	Introduction to Soft Skills, Significance of Inter & Intra-Personal Communication							
2.	SWOT Analysis, Creativity & Problem Solving							
3.	LSRW, JAM, Presentation Skills							
4.	Building a positive attitude, Leadership & Team Work							
5.	Goal Setting – Guidelines for Goal Setting							
6.	Group Discussion: Essential guidelines							
7.	Telephone Etiquette, Telephonic Interview							
8.	Resume Preparation: Common resume blunders, tips for betterment, Resume Review							
9.	Employability Skills: Emotional Intelligence, Report Writing, Social Consciousness and Social Entrepreneurship, Stress Management.							
10.	Awareness about Industry, Companies, Importance of researching the prospective workplace, Knowing about Selection Process							
11.	Interview Skills: Types of Interviews, Mock Interview, Do's and Don'ts of Interview.							
<b>Text Books:</b>								
1	Soft Skills & Employability Skills by Samina Pillai and Agna Fernandez, Cambridge University Press India Pvt. Ltd.							

2	Soft Skills, by Dr. K. Alex, S. Chand & Company Ltd., New Delhi
<b>Reference Books:</b>	
1	The Art of Public Speaking by Dale Carnegie
2	The Leader in You by Dale Carnegie
3	Emotional Intelligence by Daniel Golman
4	Stay Hungry Stay Foolish by Rashmi Bansal
5	I have a Dream by Rashmi Bansal.
<b>Additional Materials</b>	
1	<a href="https://www.youtube.com/watch?v=L7nI7cmpDZI">https://www.youtube.com/watch?v=L7nI7cmpDZI</a>
2	<a href="https://www.youtube.com/watch?v=ic5O2sxhH9M">https://www.youtube.com/watch?v=ic5O2sxhH9M</a>
3	<a href="https://www.youtube.com/watch?v=4ZQkYSpmOdU">https://www.youtube.com/watch?v=4ZQkYSpmOdU</a>
4	<a href="https://www.youtube.com/watch?v=d8p-5WcXoRs">https://www.youtube.com/watch?v=d8p-5WcXoRs</a>
5	<a href="https://www.youtube.com/watch?v=yZOar04g4zk&amp;t=94s">https://www.youtube.com/watch?v=yZOar04g4zk&amp;t=94s</a>



Code	Category	L	T	P	C	I.M	E.M	Exam
B20HS3204	HS	2	--	--	--	--	--	--
<b>GENDER SENSITIZATION</b>								
(Common to ALL Branches)								
<b>Course Objectives:</b>								
1.	To develop students' sensibility with regard to issues of gender in contemporary India.							
2.	To provide a critical perspective on the socialization of men and women.							
3.	To introduce students to information about some key biological aspects of genders.							
4.	To help students reflect critically on gender violence and workplace security.							
5.	To expose students to more egalitarian interactions between men and women.							
<b>Course Outcomes:</b> At the end of the course, students will be able to								
S.No	Outcome							Knowledge Level
1.	Understand the important issues relating to gender in contemporary India.							K2
2.	Get sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender.							K2
3.	Attain a finer grasp of how gender discrimination works in our society and how to counter it.							K2
4.	Acquire insight into the gendered division of labour and its relation to politics and economics.							K2
5.	Develop a sense of appreciation for both men and women in all walks of life.							K3
<b>SYLLABUS</b>								
<b>UNIT-I</b>	<b>Understanding Gender and Related Concepts - Gender in Everyday Life</b> Introduction: Conceptual Connotation – Sex and Gender – Basic Gender Concepts - Gendered Socialization – Gender Stereotypes –Exploring Attitudes towards Gender – Gender Roles & Relationships - Myths – Gender in Indian society – Early days – Later Vedic Period –Medieval and British Period – Independent India.							
<b>UNIT-II</b>	<b>Introduction to Gender Justice- Notion and Significance</b> Division and Valuation of Work – Housework- The Invisible Work - “My Mother doesn't work,” - Offences against Women –Fact and Fiction - Status of Women in Society – Gender and Human Rights - Gender Equality – Gender Justice – Notion and Significance							
<b>UNIT-III</b>	<b>International and Constitutional Perspectives on Gender Equality</b> The International Bill of Rights, 1979 –Declaration on the Elimination of Violence against women 1993 –The Rights of Women –Beijing Platform for Action 1995 – Constitutional Guarantees – Fundamental Rights – Equality.							

<b>UNIT-IV</b>	<b>Gender and Culture</b> Gender and Film - Gender and Electronic Media – Gender and Advertisement – Gender and Popular Literature – Gender Issues - Gender-Sensitive Behaviour – Gender being Together as Equals.
<b>UNIT-V</b>	<b>Gender Violence- Within and Beyond</b> Violence – Gender Violence – Types of Gender Violence –Gender Violence in Indian Perspective – -Women Specific Legislations for the Elimination of Violence Within and Beyond.
<b>Reference Books:</b>	
1.	“Towards A World Of Equals: A Bilingual Textbook on Gender” by A. Suneetha, Uma Bhrugubanda, Duggirala Vasanta, Rama Melkote, Vasudha Nagaraj, Asma Rasheed, Gogu Shyamala, Deepa Sreenivas, and Susie Tharu, Published by Telugu Akademi (2015).
2.	Ferber, Holcomb & Wentling, Sex, Gender & Sexuality: The New Basics, Oxford Univ. Press 2008.
3.	Flavia Agnes, Sudhir Chandra, Monmayee Basu, Women and Law in India, Oxford Univ. Press 2004.
4.	Mamta Rao, Law Relating to Women and Children, Eastern Book Co, Lucknow.
5.	K.I. Vibhute, Criminal Law, Lexis Nexis, 12th Edn.
6.	N. Prabha Unnithan (ed.), Crime & Justice in India, Sage Pub., 2013.
7.	Ritu Gupta, Sexual Harassment at Workplace, Lexis Nexis, 2013.
8.	IGNOU: Gender Sensitization: Society, Culture and Change ( 2019) BGSE001, New Delhi IGNOU.
<b>Web links:</b>	
1.	<a href="https://nptel.ac.in/courses/110105080">https://nptel.ac.in/courses/110105080</a>
2.	<a href="https://www.youtube.com/watch?v=2Xfp2eiTte0">https://www.youtube.com/watch?v=2Xfp2eiTte0</a>
3.	<a href="https://www.youtube.com/watch?v=-FCEBe5VNcA&amp;t=41s">https://www.youtube.com/watch?v=-FCEBe5VNcA&amp;t=41s</a>
4.	<a href="https://www.youtube.com/watch?v=7n9IOH0NvyY">https://www.youtube.com/watch?v=7n9IOH0NvyY</a>
5.	<a href="https://www.youtube.com/watch?v=dpC2jGqu4G0">https://www.youtube.com/watch?v=dpC2jGqu4G0</a>
6.	<a href="https://www.youtube.com/watch?v=kcW4ABcY3zI&amp;t=99s">https://www.youtube.com/watch?v=kcW4ABcY3zI&amp;t=99s</a>
7.	<a href="https://www.youtube.com/watch?v=dIXw1PbnWKM">https://www.youtube.com/watch?v=dIXw1PbnWKM</a>
8.	<a href="https://www.youtube.com/watch?v=9bayaZ18_po">https://www.youtube.com/watch?v=9bayaZ18_po</a>
9.	<a href="https://www.youtube.com/watch?v=ZbLq23cGFV4&amp;t=1662s">https://www.youtube.com/watch?v=ZbLq23cGFV4&amp;t=1662s</a>
10.	<a href="https://www.youtube.com/watch?v=61aYvb0Vo68">https://www.youtube.com/watch?v=61aYvb0Vo68</a>
11.	<a href="https://www.youtube.com/watch?v=728H4Khf7Gk&amp;t=1793s">https://www.youtube.com/watch?v=728H4Khf7Gk&amp;t=1793s</a>
12.	<a href="https://www.youtube.com/watch?v=y2Yk-rSZ7PI">https://www.youtube.com/watch?v=y2Yk-rSZ7PI</a>
13.	<a href="https://www.youtube.com/watch?v=wSqFvcjDpos">https://www.youtube.com/watch?v=wSqFvcjDpos</a>
14.	<a href="https://www.youtube.com/watch?v=AljDd7nj9wE">https://www.youtube.com/watch?v=AljDd7nj9wE</a>
15.	<a href="https://www.youtube.com/watch?v=MKPM0f2fOjM">https://www.youtube.com/watch?v=MKPM0f2fOjM</a>