E.G.S.PILLAYENGINEERINGCOLLEGE

(Autonomous)

Approved byAICTE,New Delhi|Affiliated to AnnaUniversity,
Chennai AccreditedbyNAAC with „A"Grade|Accredited byNBA
(CSE, EEE, MECH, ECE, CIVIL, IT)

NAGAPATTINAM–611002

B.E. Civil Engineering

FullTime Curriculum and Syllabus

Third Year – Fifth Semester

Course Code	Course Name	L	T	P	C	Maximum Marks		
						CA	ES	Total
Theory Course								
1902CE501	**Structural Analysis I**	**3**	**0**	**0**	**3**	**40**	**60**	**100**
1902CE502	Design of RCC Structures I	3	0	0	3	40	60	100
1902CE503	Design of Steel Structures	3	0	0	3	40	60	100
1902CE504	Foundation Engineering	3	0	0	3	40	60	100
1902CE505	Environmental Engineering	3	0	0	3	40	60	100
	Elective I	3	0	0	3	40	60	100
Laboratory Course								
1902CE551	Concrete and Highway Engineering Lab	0	0	2	1	50	50	100
1902CE552	Environmental Engineering Lab	0	0	2	1	50	50	100
1904CE553	Mini Project	0	0	2	1	50	50	100
1904GE551	Life Skills: Aptitude I	0	0	2	1	100	-	100
Audit Course								
1901MCX03	Essence of Indian Traditional Knowledge	2	0	0	0	-	-	-

L – Lecture | T – Tutorial | P – Practical | C – Credit | CA – Continuous Assessment | ES – End Semester

1902CE501	STRUCTURAL ANALYSIS I	L	T	P	C
		3	0	0	3

Course Objectives:

1. To understand the concept of analysis of indeterminate structures.
2. To Understand the methods of analysis of indeterminate trusses for external loads, lack of fit and thermal effects and also the influence line concept for indeterminate structure.
3. To study behavior of arches, Settlement and temperature effects.

Unit I	**INDETERMINATE FRAMES**	**9 Hours**

Degree of static and kinematic indeterminacies for plane frames – analysis of indeterminate pin-jointed frames – rigid frames (Degree of statical indeterminacy up to two) – Energy and consistent deformation methods.

Unit II	**SLOPE DEFLECTION METHOD**	**9 Hours**

Analysis of continuous beams - sinking of supports – rigid frames (with and without sway)

Unit III	**MOMENT DISTRIBUTION METHOD**	**9 Hours**

Distribution and carryover of moments – Stiffness and carry over factors - Analysis of continuous beams - sinking of supports – Rigid frames (with and without sway).

Unit IV	**MOVING LOADS AND INFLUENCE LINES**	**9 Hours**

Influence lines for reactions in statically determinate structures – influence lines for member forces in pin-jointed frames – Influence lines for shear force and bending moment in beam sections –Calculation of critical stress resultants due to concentrated and distributed moving loads. Muller Breslau's principle – Influence lines for continuous beams and single storey rigid frames.

Unit V	**ARCHES**	**9 Hours**

Arches as structural forms – Examples of arch structures – Types of arches – Analysis of three hinged, two hinged and fixed arches, parabolic and circular arches – Settlement and temperature effects.

	Total:	**45 Hours**

Further Reading:

1. To analyze and find out BMD

Course Outcomes:

After completion of the course, Student will be able to

1. Analyze The Pin Jointed Plane Frames Using Energy And Consistent Deformation Method.
2. Analyze Indeterminate Structures Using Slope Deflection Method.
3. Analyze Indeterminate Structures Using Moment Distribution Method.
4. Analyze Indeterminate Beams With Moving Loads.
5. Analyze the arches under external loads, temperature effects and support settlements.

References:

1. Vaidyanadhan, R and Perumal, P, "Comprehensive Structural Analysis – Vol. 1 & Vol. 2", Laxmi Publications Pvt. Ltd, New Delhi, 2003.

2. L.S. Negi& R.S. Jangid, "Structural Analysis", Tata McGraw Hill Publications, New Delhi, 6th Edition, 2003.

3. Punmia.B.C, Ashok Kumar Jain and Arun Kumar Jain, " Theory of structures", Laxmi Publications Pvt. Ltd., New Delhi, 2004

4. Reddy. C.S., "Basic Structural Analysis", Tata McGraw Hill Education Pvt. Ltd., New Delhi,2013.

5. BhavaiKatti, S.S, "Structural Analysis – Vol. 1 & Vol. 2", Vikas Publishing Pvt Ltd., New Delhi, 2008

6. Wang C.K. , "Indeterminate Structural Analysis", Tata McGraw Hill Education Pvt. Ltd.,New Delhi, 2010

7. DevadasMenon, "Structural Analysis", Narosa Publishing House, 2008

8. Ghali.A., Nebille and Brown. T.G., "Structural Analysis - A unified classical and matrix approach" Sixth Edition, SPON press, New York, 2013.

9. Gambhir. M.L., "Fundamentals of Structural Mechanics and Analysis"., PHI Learning Pvt.Ltd., New Delhi, 2011.

1902CE502	DESIGN OF RCC STRUCTURES I	L	T	P	C
		3	0	0	3

Course Objectives:

1. To develop an understanding on the basic concepts in the behavior and design of reinforced concrete systems and elements using working stress method.
2. To introduce the basic concepts and steps in the design of beams and slabs mainly in accordance with Limit state method.
3. To underline the design principles of RC members for shear, bond, and torsion.
4. To introduce the concepts in the design of RC Column design.
5. To give the knowledge in the concept of RC footings.

Unit I	**METHODS OF DESIGN**	**9 Hours**

Working stress method - Ultimate load method - Limit state method - Characteristic strength - Characteristic load - Design values - Partial safety factors - Codal provisions - Practical aspects of design - Design of flexural members and slabs by working stress method.

Unit II	**LIMIT STATE DESIGN FOR FLEXURE**	**9 Hours**

Analysis and design of One way and two way slabs – Singly and doubly reinforced rectangular beams - Cantilever beams - Standard method of detailing of RC beams and slabs.

Unit III	**LIMITSTATEDESIGN FOR BOND, ANCHORAGE, SHEAR AND TORSION**	**9 Hours**

Behavior of RC members in bond and anchorage – Curtailment of reinforcement - Design requirements as per code provision – Behavior of RC beams in shear and torsion - Design of RC members for combined bending, shear and torsion.

Unit IV	**LIMIT STATE DESIGN OF COLUMNS**	**9 Hours**

Columns – Assumptions – Effective length – Classification – Design guidelines – Axially loaded short columns with lateral ties and helical reinforcement – Columns subjected to uni-axial bending and biaxial bending –Standard method of detailing of RC columns.

Unit V	**LIMIT STATE DESIGN OF FOOTING**	**9 Hours**

Introduction and selection of footing under different site conditions - Design of wall footing – Design of axially and eccentrically loaded rectangular footing – Combined footing - Standard method of detailing of RC footing.

Total:	**45 Hours**

Further Reading :

1. students can be able to design all rcc elements of a building
2. students can be able to select suitable footing type

Course Outcomes:

After completion of the course, Student will be able to

1.Know the basic principles of different design methods
2. Design flexural members using limit state method under different loading and end conditions.
3. Design flexural members of any cross sectional shape for shear, bond, and torsion.
4. Design RC columns of any cross section with different end conditions.
5.Select and design RC footing of different cross section under various site conditions

References:

1. B. C Punmia, Ashok. Kumar Jain, Arun Kumar Jain “Limit State Design of Reinforced Concrete”, Laxmi Publications (P) Ltd, NewDelhi 2007.
2. UnnikrishnaPillai, S., DevdasMenon, “Reinforced Concrete Design”,Tata McGraw-Hill Publishing Company Ltd., New Delhi 2003.
3.Sinha, S.N., “Reinforced Concrete Design”, Tata McGraw-Hill Publishing Company Ltd., New Delhi 2002.
3. Varghese, P.C., “Limit State Design of Reinforced Concrete”,Prentice Hall of India, Pvt. Ltd., New Delhi 2002
4. Krishna Raju, N., “Design of Reinforced Concrete Structures”, CBS Publishers & Distributors, New Delhi, 2003.

1902CE503	DESIGN OF STEEL STRUCTURES	L	T	P	C
		3	0	0	3

Course Objectives:		
	1.To learn the properties of steel sections and design basics and codal provisions- Design of connections	
	2. To design steel members subjected to tension and compression member.	
	3.Design steps involved in beams, built up beams and design of plate girder	
Unit I	**INTRODUCTION**	9 Hours
Structural steel sections – Limit state design concepts - Connections- bolted and welded joints - Failure of joints - Efficiency of joints - Eccentric connections		
Unit II	**TENSION MEMBERS**	9 Hours
Types of sections – Net area – net effective sections for angles and Tee in tension – Design of connections in tension members – use of lug angles – Design of tension splice – Concept of Shear lag.		
Unit III	**COMPRESSION MEMBERS**	9 Hours
Effective length about major and minor principal axis - I.S code provisions- permissible stresses - Design rules- design of one component - two components and built up compression members under axial load- Design of Lacings and Battens - Different types of column bases - Slab base and Gusseted base - connection details		
Unit IV	**BEAMS**	9 Hours
Design of laterally supported and unsupported beams – Built up beams – design of Plate Girders – Intermediate and bearing stiffeners – Web splicing.		
Unit V	**INDUSTRIAL STRUCTURES**	9 Hours
Design of roof trusses – Elements of roof trusses – Design of purlins – Estimation of wind loads – Design of gantry girders		
	Total:	45 Hours
Further Reading		
	Advanced steel structures / Composite steel structures	
Course Outcomes:	After completion of this course, students can able to	
	1. Explain the limit state design concept and design of bolted and welded connections.	
	2. Use the IS codal provisions to the design of tension members.	
	3.Use the IS codal provisions to the design of compression members	
	4. Apply the design principles in beams and plate girders.	
	5. Analysis various components involved in roof truss structures	
References:		

1. S.S. Bhavikatti ,"Design of Steel Structures", I. K. International Pvt Ltd, 2009.
2. Gaylord, E.H., Gaylord, N.C., and Stallmeyer, J.E., "Design of Steel Structures", 3rd edition, McGraw-Hill Publications, 1992
3. Negi L.S." Design of Steel Structures", Tata McGraw Hill Publishing Pvt Ltd, New Delhi, 2007.

1902CE504	FOUNDATION ENGINEERING	L	T	P	C
		3	0	0	3

Course Objectives:

1. Familiarize the students with a basic understanding of the essential steps involved in a geotechnical site investigation.
2. Introduce to the students, the principal types of foundations and the factors governing the choice of the most suitable type of foundation for a given solution.
3. Familiarize the student with the procedures used for: a) bearing capacity estimation, b) load carrying capacity of pile, c) determining earth pressure and e) concept on stability of slope.

Unit I **SOIL EXPLORATION AND SITE INVESTIGATION** **9 Hours**

Introduction – Planning and stages in sub-surface exploration – depth and spacing of exploration – Methods of exploration – Test pit – Trenches – Geophysical methods: Seismic refraction and Electrical resistivity method –Boring : Auger boring, Shell and Auger, Wash boring and Rotary drilling – Types of soil sample: disturbed and undisturbed soil samples – Features of sampler affecting soil disturbance – standard penetration test – static and dynamic cone penetration test – bore log report

Unit II **SHALLOW FOUNDATION AND BEARING CAPACITY** **9 Hours**

Introduction – Bearing capacity- definition – types of shear failure – Bearing capacity of shallow foundation on homogeneous deposits - Methods: Terzaghi's ,Skempton's and BIS methods – Effect of water table on bearing capacity – Plate load test – Bearing capacity from in-situ tests - SPT, SCPT and plate load test methods of improving bearing capacity of soil.

Unit III **FOOTING, RAFT AND SETTLEMENT OF FOUNDATION** **9 Hours**

Types of foundation – contact pressure distribution below isolated footing – types and proportioning of combined footing – types and application of mat foundation – floating foundation – Settlement: total and differential settlements – causes and methods of minimizing settlement

Unit IV **DEEP FOUNDATION** **9 Hours**

capacity of single pile in cohesion less and cohesive soil – static formula – dynamic formulae (Engineering News and Hileys) – Capacity from in-situ tests (SPT and SCPT) – Negative skin friction – Carrying capacity of Pile group – Pile load test – Under-reamed piles – Introduction to well foundation and Diaphragm wall.

Unit V **EARTH PRESSURE AND STABILITY OF SLOPES** **9 Hours**

Earth pressure in soils: active and passive states – Lateral earth pressure Rankine's theory – stratified soil – Cullman's Graphical method –Slopes – Infinite and finite slopes – types of failure – causes of failure – Procedure for slip circle method and method of slices.

Total: 45 Hours

Further Reading:

To select suitable foundation for various soil condition.

Course Outcomes:

After completion of the course, Student will be able to

1. Illustrate the suitable techniques used for sub soil exploration.
2. Explain the type of foundation required for the given soil condition.
3. Select the dimensions of the foundation for various types of footing.
4. Interpret the load carrying capacity of piles.
5. Explain the stability analysis of retaining walls.

References:

1. Bowles .J.E, "Foundation analysis and design", McGraw Hill, 2001.
2. Murthy .V.N.S, "Textbook of Soil Mechanics and Foundation Engineering",CBS Publishers and Distributors, New Delhi, 2009.
3. Arora .K.R, "Soil Mechanics and Foundation Engineering", Standard Publishers and Distributors, New Delhi, 2011.
4.Punmia .B.C, "Soil Mechanics and Foundations Engineering", Laxmi Publications Pvt.Ltd. New Delhi, 2005.
5.Das .B.M, "Principles of Foundation Engineering" (Fifth edition), Thomson Books, 2010

1902CE505	ENVIRONMENTAL ENGINEEERING	L	T	P	C
		3	0	0	3

Course Objectives:

1. To examine the water supply system and conveyance system.
2. To create an ability to evaluate the water treatment and advanced water treatment system.
3. To train the students to analyze water distribution system and supply to buildings.
4. To understand the importance of planning and design of sewerage system.
5. To create an ability to design the waste water treatment system.
6. To impart the signification of disposal of Sewage.

Unit I **WATER SUPPLY SYSTEMS – SOURCE AND CONVEYANCE** **9 Hours**

Objectives – Population forecasting – Design period – Water demand –Sources of water – Source selection – Water quality parameters and significance –Standards – Intake structures – Conveyance – Hydraulics – Laying, jointing and testing of pipes – Pump selection –Appurtenances.

Unit II **DESIGN PRINCIPLES OF WATER TREATMENT** **9 Hours**

Objectives – Selection of unit operations and processes – Principles of flocculation, sedimentation, filtration, disinfection – Design principles of flash mixer, flocculator, clarifiers, filters – Disinfection devices – Softening – Demineralization – Aeration – Iron removal – Defluoridation – Operation and maintenance aspects – Residue management.

Unit III **DISTRIBUTION** **9 Hours**

Requirements of water distribution -Components -Service reservoirs -Functions and drawings -Network design - Analysis of distribution networks – Hardy cross method – Equivalent pipe method - Pipe Appurtenances -operation and maintenance -Leak detection, Methods. House service connection - Systems of plumbing.

Unit IV **SEWERAGE SYSTEM, COLLECTION AND TRANSMISSION** **9 Hours**

Sources of wastewater – Quantity of sanitary sewage – Storm runoff estimation – Wastewater characteristics and significance – Effluent disposal stand over – Design of sewers – Computer applications – Laying, jointing and testing of sewers – Sewer appurtenances – Pump selection.

Unit V **SEWAGE TREATMENT AND DISPOSAL** **9 Hours**

Objectives – Selection of unit operation and process – Design principles of primary and secondary treatment, screen chamber, grit chamber, primary sedimentation tanks, activated sludge process – Aeration tank and oxidation ditch – Trickling filter –Stabilization ponds – Septic tanks with soak pits – Sludge: treatment and disposal –Biogas recovery – Sewage farming.

Disposal on land – Disposal into water bodies – Oxygen sag curve – Streeter Phelp's model – Wastewater reclamation techniques.

Total: 45 Hours

Course Outcomes:

After completion of the course, Student will be able to

1. Design the components of the transmission main for the water conveyance
2. Design the water treatment units based on its principles and functions
3. Extend the water distribution to the individual buildings
4. Build a sewerage system by flow estimation and designing suitable size of sewers
5. Design the treatment units for the treatment of waste water based on the quality and quantity.

References:

1.Garg, S.K., Environmental Engineering Vol. II, Khanna Publishers, New Delhi, 2003.

2.Punmia, B.C., Jain, A.K., and Jain.A., Environmental Engineering, Vol.II, Lakshmi Publications, Newsletter, 2005

3.Manual on Sewerage and Sewage Treatment, CPHEEO, Ministry of Urban Development, Government of India, New Delhi, 1997.

4.Garg, S.K., "Environmental Engineering", Vol.1 Khanna Publishers, New Delhi, 2005.

5.Modi, P.N. "Water Supply Engineering", Vol. I Standard Book House, New Delhi, 2005.

6.Punmia, B.C., Ashok K Jain and Arun K Jain, "Water Supply Engineering", Laxmi Publications Pvt. Ltd., New Delhi, 2005

7.Government of India, "Manual on Water Supply and Treatment", CPHEEO, Ministry of Urban Development, New Delhi, 2003

1903CE001	PRE-FABRICATED STRUCTURES	L	T	P	C
		3	0	0	3

Course Objectives:

1. To impart the knowledge in the area of prefabricated structures
2. To introduces the concept of prefabrication of multi – storied structures with components
3. Use of Construction equipments and the implementation of project management system

Unit I	Introduction	9 Hours

Need for prefabrication – Principles – Types of prefabrication - Disuniting of structures - Materials – Modular coordination – Standardization – Systems – Production – Transportation – Erection – Elimination of erection stresses

Unit II	PREFABRICATED COMPONENTS	9 Hours

Behavior of structural components – Large panel constructions –roof and floor slabs – Wall panels – Columns – Shear walls.

Unit III	DESIGN PRINCIPLES	9 Hours

Form factor - Design of cross section based on efficiency of material used – Problems in design because of joint flexibility – Allowance for joint deformation – Precision and dimensional Tolerance.

Unit IV	JOINTS IN STRUCTURAL MEMBERS	9 Hours

Types of joints - Joints for different structural connections – Dimensions and detailing – Design of expansion joints

Unit V	PROGRESSIVE COLLAPSE & CODE PROVISIONS	9 Hours

Progressive Collapse – Fire Resistance – Renovation, Demounting and Demolition -Code provisions – IS 15916:2010 – ASCE 7-02, ACI 318-02, GSA PBS Facilities Standards 2000, GSA PBS Facilities Standards 2003, GSA PBS Progressive collapse Guidelines 2003 - Importance of avoidance of progressive collapse.

Total: 45 Hours

Further Reading: None

Design some of the prefabricated elements and also have the knowledge of the construction methods.

Course Outcomes:

After completion of the course, Student will be able to

1. **Illustrate the design principles for prefabricated structures**
2. Explain the various connections in prefabricated structures
3. Apply the principles and systems of prefabrication in the field
4. Identify suitable prefabricated components for specific use
5. Utilize the various code provisions regarding progressive collapse

References:

1. L. Mokk, Prefabricated Concrete for Industrial and Public Structures, Publishing House of the Hungarian, Academy of Sciences, Budapest, 2007
2. CBRI, Building materials and components, India, 1996
3. Gerostiza C.Z., Hendrikson C. and Rehat D.R., Knowledge based process planning for construction and manufacturing, Academic Press Inc., 1994
4. Koncz T., Manual of precast concrete construction, Vols.I,II and III,Bauverlag, GMBH, 1971.
5. B.Lewicki, Building wih large prefabricates, Elsevier Publishing Company Amserdam / London /Newyork.1966
6. Structural design manual, Precast concrete connection details, Society for the studies in the use of precast concrete, Netherland BetorVerlag, 1978
7. IS 15916:2010 – Building design and erection using prefabricated concrete – Code of practice

1902CE551	CONCRETE AND HIGHWAY ENGINEERING LAB	L	T	P	C
		0	0	4	2

Course Objectives:

1. This course provides an understanding of the basic properties of construction materials, and presents laboratory standards and testing requirements for these materials.
2. To familiarize the students to do the experiments as per the guidelines of BIS.
3. To develop an understanding of the highway materials and to obtain knowledge on properties of these materials.

List of Experiments:

1. Tests on cement

1. Determination of specific gravity of cement.
2. Determination of standard consistency of cement.
3. Determination of initial and final setting times of cement.
4. Determination of compressive strength of cement mortar.

2. Tests on aggregates

1. Determination of Specific gravity and water absorption of fine & coarse aggregates.
2. Determination of Fineness modulus of fine aggregate & coarse aggregate.

3. Tests on fresh and hardened concretes

1.Determination of degree of workability: Slump cone test, Flow table, Compaction factor and Vee bee Consistometer

2. Determination of Compressive strength of concrete
3. Determination of Flexural strength of concrete
4. Determination of Splitting tensile strength of concrete

4. Tests on Highway materials- Sub-grade material and Aggregates

1. Crushing value test, impact value test, angularity test and abrasion test on aggregates.
2.Marshall stability for bituminous mix
3.Bitume extractor for bituminous mix

5. Tests on Bitumen

1. Penetration test and Ductility test.
2. Flash point test and viscosity test.

Total: 45 Hours

Additional Experiments:

1. CBR test on the soil/ granular material.

Course Outcomes:

After completion of the course, Student will be able to

1. Evaluate the properties of cement
2. Understand the quality of aggregates used in concrete
3. Analyze the properties of fresh and hardened concrete
4. Knowledge gain about the highway materials
5. Evaluate the properties of bitumen

References:

1. Shetty,M.S, "Concrete Technology", S.Chand and Company Ltd, New Delhi, 2003
2. Santhakumar,A.R; "Concrete Technology" , Oxford University Press, New Delhi, 2007
3. Gambir, M.L; "Concrete Technology", 3rd Edition, Tata McGraw Hill Publishing Co Ltd, New Delhi, 2007
4. IS10262-1982 Recommended Guidelines for Concrete Mix Design, Bureau of Indian Standards, New Delhi, 1998
5. Neville, A.M; "Properties of Concrete", Pitman Publishing Limited, London,1995

1902CE552	ENVIRONMENTAL ENGINEERING LAB	L	T	P	C
		0	0	2	1

Course Objectives:

1. To know the basics, importance of water and wastewater treatment and methods measurement.
2. Tostudy the various effects of water and waste water pollution.
3. Effect of BOD and COD
4. To find Calcium, Potassium and Sodium
5. Heavy metal effects and finding methods

List of experiments

1. Measurement of pH, Electrical conductivity and turbidity
2. Determination of Calcium, Potassium and Sodium
3. Determination of Phosphate and Sulphate
4. Determination of Optimum Coagulant Dosage by Jar test apparatus
5. Determination of available Chlorine in Bleaching powder and residual chlorine in water
6. Determination of Ammonia Nitrogen
7. Estimation of suspended, volatile and fixed solids
8. Determination of Dissolved Oxygen
9. Estimation of B.O.D
10. Estimation of C.O.D

Total: 45 Hours

Course Outcomes:

After completion of the course, Student will be able to

1. characterize given water and waste water sample

References:

1. Standard methods for the examination of water and wastewater, APHA, 20th Edition, Washington, 1998
2. Garg, S.K., "Environmental Engineering Vol. I & II", Khanna Publishers, New Delhi
3. Modi, P.N., "Environmental Engineering Vol. I & II", Standard Book House, Delhi-6

MINI PROJECT **L T P C**
0 0 2 1

1902CE553

Aim: To carry out a thematic design project in one of the specializations of civilengineering

Course Objectives:
To carry out a project this will make the students aware of the different facets of civil engineering

List of areas
1. Structural Engineering

2. Geotechnical Engineering

3. Water Resources Engineering

Course outcomes:

At the end of the course, the students will be able to

Structural Engineering

1.Prepare a structural lay out from architectural drawings Calculation loads Design of representative structural elements like slab, beam, columns, foundation etc.

2.Carry out testing in Strength of materials / concrete / structural labs

3.Learn any software and solving a problem using that.

Geotechnical Engineering

1. Collect samples of soil and identification of their types Collection of literature on types of foundation

Presentation of soil improvement techniques

2.Learn any software and solving a problem using that.

Water Resources And Environmental Engineering

1.Carry out population survey and working out water requirement. Preparation of a schematic diagram of water / wastewater treatment plants Assessment of quality of water / sewage by experiments Design of dock gates

ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE **L T P C**
2 0 0 0

1902MCX03 (Common to All Branches) Mandatory Course

Prerequisite: Nil
Course Objectives: The course will introduce the students to

- To get a knowledge in Indian Culture
- To Know Indian Languages and Literature and the fine arts in India
- To explore the Science and Scientists of Medieval and Modern India

Course Outcomes: After successful completion of the course, the students will be able to
1. Understand philosophy of Indian culture.
2. Distinguish the Indian languages and literature.
3. Learn the philosophy of ancient, medieval and modern India.
4. Acquire the information about the fine arts in India.
5. Know the contribution of scientists of different eras.

MODULE - I Introduction to Culture: Culture, civilization, culture and heritage, general characteristics of culture, importance of culture in human literature, Indian Culture, Ancient India, Medieval India, Modern India

MODULE - II Indian Languages, Culture and Literature: Indian Languages and Literature-I: the role of Sanskrit, significance of scriptures to current society, Indian philosophies, other Sanskrit literature, literature of south India Indian Languages and Literature-II: Northern Indian languages & literature

MODULE - III Religion and Philosophy: Religion and Philosophy in ancient India, Religion and Philosophy in Medieval India, Religious Reform Movements in Modern India (selected movements only)

MODULE – IV Fine Arts in India (Art, Technology& Engineering): Indian Painting, Indian handicrafts, Music, divisions of Indian classic music, modern Indian music, Dance and Drama, Indian Architecture (ancient, medieval and modern), Science and Technology in India, development of science in ancient, medieval and modern India

MODULE – V Education System in India: Education in ancient, medieval and modern India, aims of education, subjects, languages, Science and Scientists of Ancient India, Science and Scientists of Medieval India, Scientists of Modern India

REFERENCES:
1. Kapil Kapoor, “Text and Interpretation: The India Tradition”,ISBN: 81246033375, 2005
2. “Science in Samskrit”, Samskrita Bharti Publisher, ISBN 13: 978-8187276333, 2007
3. NCERT, “Position paper on Arts, Music, Dance and Theatre”, ISBN 81-7450 494-X, 200
4. S. Narain, “Examinations in ancient India”, Arya Book Depot, 1993
5. Satya Prakash, “Founders of Sciences in Ancient India”, Vijay Kumar Publisher, 1989
6. M. Hiriyanna, “Essentials of Indian Philosophy”, Motilal Banarsidass Publishers, ISBN 13: 978- 8120810990, 2014

LIFE SKILL III - APTITUDE – I

1904GE551

Course Objective (s):

- To brush up problem solving skill and to improve intellectual skill of the students
- To be able to critically evaluate various real life situations by resorting to Analysis Of key issues and factors
- To be able to demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions.
- To enhance analytical ability of students
- To augment logical and critical thinking of Student

Unit 1	**Number System**	6 Hours
Classification of numbers – Types of Numbers - Divisibility rules - Finding the units digit - Finding remainders in divisions involving higher powers - LCM and HCF Models - Fractions and Digits – Square, Square roots – Cube, Cube roots – Shortcuts of addition, multiplication, Division.		
Unit 2	**Ratio and proportions**	6 Hours
Definition of Ratio - Properties of Ratios - Comparison of Ratios - Problems on Ratios - Compound Ratio - Problems on Proportion, Mean proportional and Continued Proportion - Introduction Partnership - Relation between capitals, Period of investments and Shares- Problems on mixtures - Allegation rule - Problems on Allegation – Problems on ages -		
Unit 3	**Average, Percentages**	6 Hours
Definition of Average - Rules of Average - Problems on Average - Problems on Weighted Average - Finding average using assumed mean method - Introduction Percentage - Converting a percentage into decimals - Converting a Decimal into a percentage - Percentage equivalent of fractions - Problems on percentages -		
Unit 4	**Coding and decoding, Direction sense**	6 Hours
Coding using same set of letters - Coding using different set of letters - Coding into a number - Problems on R-model - Solving problems by drawing the paths - Finding the net distance travelled - Finding the direction - Problems on clocks - Problems on shadows - Problems on direction sense using symbols and notations.		
Unit 5	**Logical Reasoning**	6 Hours
Difference series - Product series - Squares series - Cubes series - Alternate series - Combination series - Miscellaneous series - Place values of letters - Definition of Analogy - Problems on number analogy - Problems on letter analogy - Problems on verbal analogy - Problems on number Odd man out - Problems on letter Odd man out - Problems on verbal Odd man out		
		Total 30 Hours

COURSE OUTCOMES:

On the successful completion of the course, students will be able to

CO1: Learners should be able to understand number and solving problems least time using various shortcuts

CO2: compare two quantities using ratio and proportion, Solve problems on Partnership, Mixture & Allegation and ages least time using shortcuts and apply real life situations

CO3: Learns should be able to understand the concept behind Average and Percentage.

CO4: Workout concepts of Coding and Decoding, ability to visualize directions and understand the logic behind a sequence.

CO5: Learners should be able to find a series the logic behind a sequence.

References :

1. Arun Sharma, 'How to Prepare for Quantitative Aptitude for the CAT', 7th edition, McGraw Hills publication, 2016.
2. Arun Sharma, 'How to Prepare for Logical Reasoning for CAT', 4th edition, McGraw Hills publication, 2017.
3. R S Agarwal, 'A modern approach to Logical reasoning', revised edition, S.Chand publication, 2017.
4. R S Agarwal, 'Quantitative Aptitude for Competitive Examinations', revised edition, S.Chand publication, 2017.
5. Rajesh Verma, "Fast Track Objective Arithmetic", 3rd edition, Arihant publication, 2018.
6. B.S. Sijwalii and Indu Sijwali, "A New Approach to REASONING Verbal & Non-Verbal", 2nd edition, Arihnat publication, 2014.