

UNIVERSITY OF KERALA

**B. ARCH. DEGREE COURSE
(2013 SCHEME)**

**SYLLABUS FOR
III SEMESTER**

SCHEME -2013

III SEMESTER

Course No	Course Title	Credits	Hours/ week			Duration of Exam	Marks			Total
			L	T	P		W	J	S	
13AR1301	Architectural Design II	5	-	-	10	-	-	250	250	500
13AR1302	Building Materials and Construction - II	4	1	-	3	4	100	-	100	200
13AR1303	History of Architecture - II	2	2	-	-	3	100	-	50	150
13AR1304	Building Climatology	2	2	-	-	3	100	-	50	150
13AR1305	Architectural Graphics - II	4	-	-	4	4	100	-	100	200
13AR1306	Humanities	2	2	-	-	3	100	-	50	150
13AR1307	Computer Applications in Architecture	2	-	-	2	-	-	-	50	50
13AR1308	Structural Design - II	3	2	1	-	3	100	-	50	150
Total		24	9	1	19		600	250	700	1550

13AR1301 ARCHITECTURAL DESIGN – II

Teaching Scheme: 0(L) - 0(T) - 10(P)

Credits: 5

Course Objective:

- *To familiarize the students with designs and the architectural design process.*
- *To sensitize students to be more observant to their surroundings areas.*
- *To promote in them a creative instinct.*
- *To introduce the design of built environments meant for single as well as multifunctional activities.*

The students are required to do one major project and one minor project.

Short project- Multiuse, single unit spaces such as cafeteria, prayer hall, cottage etc...

Major Project – Multi use, multifunctional spaces with horizontal development, interconnection between many spaces etc Eg Nursery school, Health clubs, clinics, single bed residences etc

Note: Students are required to give importance to climate responsive & environment friendly buildings, meet the needs of physically challenged.

Design solutions shall be worked out using study models from the initial stage of design.

All design sheets should be manually drafted.

References:

1. Graves M., *Treat of colour and design*, McGraw Hill, 1951
2. Mills E. D., *Planning: Architect's Handbook*, 10/e, Butterworths, 1985.
3. De Chiara J. and J. H. Callender, *Time Saver Standards for Building Types*, McGraw Hill, 2001.
4. Alpern A., *Handbook of Speciality Elements in Architecture*, McGraw Hill, 1982.
5. Panero J. and M. Zelnick, *Human Dimensions and Interior Space*, Watson Guptill Publications, 1979.
6. Neufert E., P. Neufert, B. Baiche and N. Walliman, *Neufert Architects Data*, Blackwell Publishers, 2002.
7. Unwin S., *Analyzing Architecture*, Taylor and Francis, 2009.

Internal Continuous Assessment *(Maximum Marks - 250) (Group 1 Subject)*

20% - Tests (minimum 2)

70% - Class work

10% - Regularity in the class

University Examination Pattern:

Course work will be assessed by a panel of Jury. (Maximum Marks - 250)

Course Outcome:

At the end of the course, the students shall have acquired knowledge of the process involved in addressing a design problem.

13AR1302 BUILDING MATERIALS AND CONSTRUCTION II

Teaching Scheme: 1(L) - 0(T) - 3(P)

Credits: 4

Course Objective:

- *To introduce the study of building materials, their applications and construction methods.*
- *To familiarize the students with market study of building components and details.*
- *To understand conventional as well as vernacular and traditional building materials and practices.*
- *To understand prevailing BIS specifications.*

Module – I

Introduction to metals and their application in building construction. Ferrous and non ferrous metals.

Iron: Forms of iron employed in building construction-wrought iron, cast iron and steel- physical properties- uses.

Steel: Types of steel employed in building construction- properties- uses. Mechanical treatment of steel - heat treatment of steel- Hot rolled steel & cold rolled steel. BIS Specifications of steel used for building construction. Structural steel- Bi steel- Stainless steel- Heat treated steel- Coated steel- Properties & Use.

Steel as reinforcement in RCC work: Role of steel – bond between steel and concrete – types of reinforcement for concrete – standard forms - cutting, bending and placing of reinforcement.

Aluminium: Aluminium in buildings- properties- advantages - available forms -casting, extrusion, foil, powder & sheet - uses- finishes - anodising, surface texture, colour coating & painting.

Copper, Brass & Bronze: Applications in buildings – properties – advantages - available forms.

Discussion: *Metal v/s wood – advantages & disadvantages. Environmental issues caused due to usage metals in construction.*

Exercise: *Study of available steel and aluminium products and profiles, w.r.t. building construction, in the market. Familiarize steel tables.*

Study of available metal fasteners & hardware.

Understanding Vernacular knowledge systems about hardware and fasteners.

Site visits to study the aspects of steel reinforcement.

Module – II

To understand the aspects of site, building and their relation. To study about construction of foundations.

Soil: Classification- Properties- Bearing Capacity, Safe bearing capacity and methods for improving it.

Site protection: Slope protection- Edge protection- Retaining walls- Materials & Methods. Site Drainage-Rain water harvesting- Surface protection- Paving materials, patterns & methods.

Shallow foundations: Excavation for foundations – excavation in loose soil – shoring, shuttering and under pinning. Spread footings – strip footing, stepped footings, isolated footing. Continuous footing - Strap footing, Combined footing. Mat/ Raft foundation. Foundation walls – concrete foundation walls, concrete masonry foundation walls. Pole foundation and footing for wooden post and steel column. Foundation on sloping terrain. Concept of grade beam and slab.

Discussion: *Site and building- Challenges like Sustainability, Cost, Environment, Regionalism, Soil, Topography, Vegetation, Solar radiation, Precipitation, Wind, Sound, Views, Rules and regulations, Zoning, Access and Circulation.*

Exercise: *Documentation of vernacular/ traditional methods for site edge/slope protection.*

Preparation of center line plan and site visit to study a building set out.

Drawings: *Strip footing, stepped footings, isolated footing, Continuous footing - Strap footing, Combined footing, Mat/ Raft foundation, RCC footing for wooden post and steel column, foundation on sloping terrain.*

Module – III

Doors and window systems.

Door types: Metal doors, metal framed doors, plastic doors & glass doors.

Door frames: Rabbet frame, wrap around installation, butt frame installation, hollow metal stick system – corner construction.

Door operation: Swinging, folding and sliding.

Door designs: Hollow core & solid core, framed & frameless doors, vision, louvered, glass & plastic.

Special purpose doors: Fire doors – revolving doors - overhead doors - coiling doors. Weather stripping and thresholds.

Window types: Aluminium, Steel and plastic.

Window operation: Fixed, casement, awning & hopper, sliding, double hung, jalousie and pivoting.

Discussion: *Comparative study of metal and plastic doors and window systems. Advantages, disadvantages, durability and cost factor.*

Exercise: *Market surveys of door / window hardware – hinges, locks, latches, knobs, handles, door closers, gaskets etc. Site visits to see door/ window construction.*

Drawings: *Construction detail of swinging, folding and sliding doors. Construction details of aluminium and steel windows*

Module – IV

Glass and glazing.

Glass products: Non sheet products: Glass fibres, Cast glass, Cellular or foamed glass.

Sheet products: Float glass, traditional blown & drawn glass, curved sheet glass, self cleaning glass, clear white glass, patterned glass, screen printed glass, etched and sand blasted glass, coloured glass, wired glass, toughened glass, heat strengthened glass, laminated glass, fire resistant glass and coloured enamelled glass.

Special purpose glasses: Low emissivity glasses, Solar control glasses and variable transmission glasses.

Glazing: Single, double and triple glazing. Face glazing/ structural – wet and dry glazing. Glazed curtain walls & sky lights.

Discussion: *Manufacturing of glass, composition of glass, glass making process, energy conservation and environmental impact.*

Exercise: *Market surveys of glass products – sizes and cost. Collection of samples Glazing accessories.*

References:

1. Parker H., *Materials and Methods of Architectural Construction*, John Wiley & Sons, Canada, 1958.
2. McKay W. B., *Building Construction*, Orient Longman 21, London, 1938-44.
3. Barry R., *The Construction of Buildings (Vol. I-II)*, 6/e, Affiliated East-West Press Pvt. Ltd., New Delhi, 1996.
4. Simmons H L., *Construction – Principles, Material & Methods*, 7/e, John Wiley & Sons Inc., New York, 2001.
5. Ching F. D. K., *Building Construction Illustrated*, Van Nostrand Reinhold Co. Inc., USA, 1985.

6. Relevant BIS codes.
7. Harold R. J, *Construction Materials for Architecture*, Krieger Pub Co, 1992.
8. Varghese P.C., *Building Materials*, Prentice Hall of India Pvt Ltd, New Delhi, 2005.
9. Smith R. C. and T. L. Honkala, *Principles and Practices of Light Construction*, Prentice Hall, Englewood, 1986.
10. Lyons A., *Materials for Architects and Builders*, Elsevier Butterworth- Heinemann, 2004.

Internal Continuous Assessment (*Maximum Marks - 100*) (*Group 1 Subject*)

20% - Tests (minimum 2)

70% - Class work

10% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of 2 parts.

Part A:

Question 1. (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Question 2. (10 marks) – Questions for 10 marks from module I and II. Candidates have to answer any one out of the two.

Question 3. (10 marks) – Questions for 10 marks from module III and IV. Candidates have to answer any one out of the two.

Part B:

Question 4. (20 Marks) – Drawing: Candidates have to answer any one full question out of the two from module II.

Question 5. (20 Marks) – Drawing: Candidates have to answer any one full question out of the two from module III.

Course Outcome:

Upon completion of the course, the student shall have acquired the concept of various components of buildings, materials used and methods of construction. The student have acquired knowledge in both conventional as well as vernacular building practices.

13AR1303 HISTORY OF ARCHITECTURE II

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 2

Course Objective:

- *To introduce to the students the world architectural scenario from around 800 AD to around 1200 AD (In European Architecture the period from 300 AD is also added).*
- *To induce an appreciation to the importance of history of architecture and its relationship to the development of any place.*
- *To develop awareness about the precious architectural past we had and how to build our future based on that tradition, wisdom and technical knowledge.*

Module – I

Early Christian Architecture: Evolution of Church form (Example; Old St. Peters Rome)

Byzantine Architecture: Greek cross and Latin cross plans, Technique adopted to construct domes, Surface treatment and material of construction. (Example; Hagia Sophia)

Romanesque Architecture: Design evolution, Planning principles and Characteristics (Example; Pisa Cathedral)

Module – II

Moorish Architecture; Characteristics and Planning Principles. Elements like Muqarnas and Horseshoe arch. (Example; Alhambra Complex, Granada and Great Mosque of Cordova).

Mayan Architecture (Example; City of Chichen Itza, Mexico and Tikal Temples, Guatemala).

Module – III

Dravidian Architecture: Chola –Tanjore Style, Pandya- Madhura Style, Kailasanatha, Brihadeshwara, Srirangam, Vijayanagara (Example: Hampi).

Indo-Aryan Architecture: Orrissan (Example: Lingaraja and Sun Temple Konark) Khajuraho (Example: Kandariya Mahadeva Temple), Gujarath (Example: Sun Temple, Modhera).

Module – IV

Beginning of Islamic Architecture in India: A brief introduction into origin & characteristics of Islamic architecture: building types, elements, structural systems, construction techniques.

Imperial style of Delhi: Slave dynasty (Example; Quwat-ul-Islam mosque, Qutb Minar), Khilji Dynasty (Example; Alai Darwaza).

References:

1. Brown P., *Indian Architecture (Islamic Period)*, D.B. Taraporevala Sons & Co. Private Ltd., Bombay, 1997.
2. Grover S., *Islamic Architecture in India*, CBS Pub., New Delhi, 2002.
3. Fletcher B. and D. Cruickshank [Ed.], *Sir Banister Fletcher's a History of Architecture*, Architectural Press, 1996.
4. Tadgell C., *The History of Architecture in India*, Phaidon Press, 1994.

Internal Continuous Assessment (Maximum Marks - 50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, quiz, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

Course Outcome:

Knowledge about the history of a culture, its building art and construction techniques helps an architecture student to develop designs that are rooted in the country. Upon completion of the course, the student will be able to develop a keen appreciation of our heritage buildings leading to the understanding that architecture is the product of a particular culture, time and place.

13AR1304 BUILDING CLIMATOLOGY

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 2

Course Objective:

- *To provide a broad awareness about the relation between climate and architecture*
- *To enable students to do a systematic study of the site climate in architectural projects*
- *To guide the students towards the design for thermal comfort in various climates*

Module – I

Climate and Architecture: Climate and weather, need of study (comfort, sustainability), vernacular examples of architecture evolved from climate.

Global Climatic Factors: Formation of different climates and seasons globally, tilt of the earth's axis, earth's thermal balance, global wind pattern.

Module – II

Elements of Climate: Quantification of elements, units, measurement, data, graphical representation. Sun path diagrams.

Classification of Climates: Different climates around the globe, tropical climates, climate of Kerala, monsoon. Macro and micro climate, site climate, urban climate.

Module – III

Thermal Comfort : Thermal balance of the human body, regulatory mechanisms, subjective variables. Thermal comfort indices, effective temperature, corrected effective temperature.

Module – IV

Climatic Design: Designing for different climates, active and passive systems. Shelters for tropical climates. Shelter for the climate of Kerala.

Exercises: Exercises should be focused on making students understand the application of climatology in architecture.

References:

11. Koenigsberger O. H., T. G. Ingersoll, A. Mayhew and S. V. Szokolay, *Manual of Tropical Housing and Building: Climate Design*, University Press, 1975.
12. Givoni B., *Man, Climate and Architecture*, John Wiley & Sons, 1998.

13. Fry E. M. and J. Drew, *Tropical Architecture in the Dry and Humid Zones*, Reinhold Publishing, 1964.

14. Markus T. A. and E. N. Morris, *Building Climate and Energy*, Pitman Pub., 1980.

Internal Continuous Assessment (*Maximum Marks - 50*) (*Group 2 Subject*)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, quiz, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

Course Outcome:

The course shall provide a broad awareness on the importance of climatology in architecture shall lay the foundation for subjects dealing with detailed and more specific aspects related with climate, comfort, sustainability and passive design which are incorporated in the following semesters.

13AR1305 ARCHITECTURAL GRAPHICS -II

Teaching Scheme: 0(L) - 0(T) - 4(P)

Credits: 4

Course Objective:

- *To provide a comprehensive introduction to architectural representation, perspective drawings, sciography etc.*
- *To give an introduction to graphic design, related softwares and photography.*

Module – I

Perspective drawing- Leonardo's window- perspective projection concepts, Vanishing points, station points, picture planes etc. Types of perspective-Single point perspective, Two point perspective. Perspective projection of simple objects, buildings, interior perspectives, human figures, landscapes etc in perspective, Sciography.

Module – II

Introduction to vector drawing program- Adobe Illustrator, Freehand, Coral draw .properties of vector graphics and introduction to their various tools.

Introduction of raster images – image resolution – RGB, CMYK, Index colour modes and their application – basic drawing in Photoshop – Using airbrush, pencil brush tools. Concept of layers in Photoshop – Transparency and blending modes- creative use of layers and blending modes. Preparation of images for print and web.

Module – III

Techniques of representation to acquire the necessary skill to represent visual images. Exercise on converting visual images into 2D representation. Corporate design – Design of corporate logo. Symbols and signage- graphic symbol design project. Poster design project- Design a poster for an event/cause/awareness campaign – Brochure design project- Student design a brochure for an event/cause/awareness campaign.

Module – IV

(Evaluation by internal assessment only)

Color photography, communicating ideas through photography. Study of photographic images, documentary and reportorial techniques, emphasis on experimental manipulation., materials and environment. Various trends in photography. Introduction to film theory and design for the dynamic media.

Sculpture making – Relief sculptures, round sculptures using clay. Moulding and casting using plaster-of-Paris and cements

References:

8. Adobe Creative Team, *Adobe Illustrator CS6 Classroom in a Book*, Adobe Press, 2012.
9. Cohan L. S., *Adobe Photoshop CS Creative studio*, Adobe Press, 2003.
10. Drafahl J. and S. Drafahl, *Step-by-Step Digital Photography: A Guide for Beginners*, Amherst Media Inc., 2004.
11. Miotke J., *The Better Photo Guide to Digital Photography*, Amphoto Books, 2005.
12. Walton R., *The Big Book of Graphic Design*, Collins Design, 2007.
13. Meggs P. B., *A History of Graphic Design*, 3/e, John Wiley & Sons; 1998.

Internal Continuous Assessment (Maximum Marks - 100) (Group 1 Subject)

20% - Tests (minimum 2)

70% - Class work.

10% - Regularity in the class

University Examination Pattern:

Examination duration: 4 hours

Maximum Total Marks: 100

The question paper shall consist of 2 parts.

Part A (20 marks) - Five Short answer questions of 5 marks each. All questions are compulsory. There should be minimum one question from Modules I, II and III and not more than two questions from any of the modules.

Part B (80 Marks) – Drawing: Candidates have to answer one full question out of the two based on Modules I and III. Each question carries 80 marks

Course Outcome:

At the end of the course, the students shall have gained an understanding of architectural representation graphically and through computer aided drafting software.

13AR1306 HUMANITIES

Teaching Scheme: 2(L) - 0(T) - 0(P)

Credits: 2

Course Objectives:

- *To expose the students to the relationship between humans and the surrounding world and their likely effect in the built environment.*
- *To introduce the students to the basic concepts of sociology as relevant to architecture.*
- *To introduce students to key issues in historical and contemporary global scenario and to develop a language and vocabulary for discussions/ analysis on the sociological dimensions of architecture.*

Module – I

Introduction to Sociology. - Primary concepts: Society, Family, Community, Institutions, Associations, Culture, Groups.

Relevance of Sociology in Architecture

Module – II

Population, Urbanism and Urbanization, Modernization, Rural Society, Urban Society, Population and Demographic transition in India

Module – III

Social Problems: Poverty, Unemployment, Inequality.

Social structure, Social Stratification - Gender, Race, Class, Caste - Social Stratification in India

Module – IV

Culture and Architecture. - Relation between Social structure and Spatial Structure.

Social aspects of Housing. - Slums; Social Problems of Slums, Slums in India

References

1. Macionis, J. J., *Society: The Basics*, Person, 2012.
2. Henslin J. M., *Essentials of Sociology: A Down to Earth Approach*, Pearson, 2012
3. Rao C. N. S., *Sociology*, S. Chand & Company, New Delhi, 2006.
4. Haralambos M., M. Holborn, *Sociology Themes and Perspectives*, Harper Collins, 2013.
5. Singh K., *Principles of Sociology*, Prakashan Kendra, New Delhi, 2001.

6. Majumdar, P. K., *India's Demography Changing Demographic Scenario in India*, Rawat Publications, 2013.
7. Ramachandran, R., *Urbanization and Urban Systems in India*, Oxford University Press, 1989.
8. Naik N. T. K. and S. M. Rahman, *Urbanization of India*, Serial Publications, New Delhi, 2007.
9. Bhushan V. and D. R. Sachdeva, *An Introduction to Sociology*, Kitab Mahal, 2004.

Internal Continuous Assessment (*Maximum Marks - 50*) (*Group 2 Subject*)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, quiz, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

Course Outcome:

Students should be able to identify the problems faced by the society and should develop responsible approaches towards their profession

13AR1307 COMPUTER APPLICATION IN ARCHITECTURE

Teaching Scheme: 0(L) - 0(T) - 2(P)

Credits: 2

Course Objectives:

- *To provide a broad awareness about the use of software as an aid for architectural presentations.*
- *To enable students to make visual images of their designs.*

Module – I

Development of computer and its application: Evolution of Computers, Organization of computer systems, Developments in hardware and software technology. - Internet and on-line resources. - Overview of current applications CAD concepts. - Computer as a drafting aid, scope and limitations of computer application in Architecture.

Module – II

Computer Aided Drafting: Concept of Computer aided drafting – Conventional drafting and CAD. - Brief overview of related software. - Units of a CAD workstation, their operation and critical parameters. - Description of building geometry and topology and related general concepts.

Module – III

Computer Graphics: Understanding 3D co-ordinate system – Using view ports. - 3D drawing & editing commands, solid modelling – advanced solid modelling commands – editing solids. - Introduction to rendering in 3D – Rendering process, animation and virtual reality. - Enhancing digital images from CAD applications using other packages.

Module – IV

Computer Aided Data Analysis: Database management systems, Basics of data analysis, Software for data analysis. - Requirements of Engineering/Architectural databases, Office management systems.

Analysis - structural problems, cost estimation and analysis. Analysis of project network, environmental aspects such as lighting and sound. - Distribution using simplified models.

References :

1. Manuals & References of CAD, ACAD and other software.
2. Sanders D. H., *Computers Today*, McGraw Hill, 1988.
3. Mitchell W. J., *Computer Aided Architectural Design*, Van Nostrand, 1997.
4. Broadbent G., *Design in Architecture*, John Wiley, 1981.

Internal Continuous Assessment (*Maximum Marks - 50*) (*Group 2 Subject*)

20% - Tests (minimum 2)

70% - Class work.

10% - Regularity in the class

No University Examination

Course outcome:

At the end of the course the student shall be able to do two dimensional as well three dimensional drawings to present of a design idea legibly. He shall be able to explore the possibilities of a complete visualization of spaces he designs. Moreover he shall be equipped to extract all the information required at its execution stage.

13AR1308 STRUCTURAL DESIGN II

Teaching Scheme: 2(L) - 1(T) - 0(P)

Credits: 3

Course Objective:

- *An understanding of fundamentals of structural analysis including concepts of bending stresses and shear stresses*
- *An understanding of concepts of deflection of beams and various methods of its computation.*
- *An understanding of behaviour of columns under axial loading.*

Module – I

Theory of simple bending, section modulus, bending stresses in symmetrical beams, bending of composite beams.

Module – II

Shear stresses in beams, concept of shear stresses in beams, distribution of shear stresses in simple cross sections. Torsion – Concept of twisting of beams, torsion equation, torsional stresses in simple sections.

Module – III

Slope and deflection of statically determinate beams, simple problems using double integration, Macaulay's Method, Moment area method and conjugate beam method.

Module – IV

Columns, different types, discussion on radius of gyration, elastic stability of slender column – Euler's formula, Rankine's formula and IS code Formula.

References:

1. Junarkar S. B. and Shah S. J., *Mechanics of Structures (Vol. I)*, 30/e, Charotar Publishing House Pvt. Ltd., New Delhi, 2012.
2. Punmia B. C., A. K. Jain and A. K. Jain, *Strength of Materials & Theory of Structures (Vol.I)*, Laxmi Publications, New Delhi, 2013.
15. Vaidyanathan R. and P.Perumal, *Structural Analysis (Vol.I)*, Laxmi Publications, 2004.

Internal Continuous Assessment (Maximum Marks - 50) (Group 2 Subject)

50% - Tests (minimum 2)

30% - Assignments (minimum 2) such as home work, seminar, term-project, etc.

20% - Regularity in the class

University Examination Pattern:

Examination duration: 3 hours

Maximum Total Marks: 100

The question paper shall consist of Two Parts

Part A (40 marks) - Eight Short answer questions of 5 marks each. All questions are compulsory. There should be two questions from each module.

Part B (60 Marks) – Two Questions from each module. Candidates have to answer any one full question out of the two from each module. Each question carries 15 marks.

Course Outcome:

The students after undergoing this course will be able to understand the behaviour of various structural elements under the action of static loads.