K.R. MANGALAM UNIVERSITY

THE COMPLETE WORLD OF EDUCATION

# SCHOOL OF ARCHITECTURE & DESIGN (SOAD)

## BACHELOR OF SCIENCE (HONS.) INTERIOR DESIGN
## B.Sc.(H) ID

## PROGRAMME CODE: 80

## 2022-25

**Approved in the 29th Meeting of Academic Council Held on 09 August 2022**

Academic Council
Member Secretary
K.R. Mangalam University

Registrar
K.R. Mangalam University
Sohna Road, Gurugram, (Haryana)

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# PREFACE

K.R. Mangalam University envisions all its programs in the best interest of their students. It imbibes an outcome-based curriculum for all its programs to provide a focused, student-centric syllabus with an agenda to structure the teaching-learning experiences in a more outcome based.

The outcome-based curriculum strengthens students' experiences and prepares the students for both, academia and employability, sustainability and life-long learning.

Each program reflects the promise to accomplish the learning outcomes by studying the courses. The graduate attributes encompass values related to well-being, emotional stability, critical thinking, social justice and also skills for entrepreneurship.

The redesigned curriculum focuses on the multi-disciplinary nature of the field of design with emphasis on core design subjects with skills to represent the process of design graphically. Another important part is the aspect of realizing the concept and graphical representation into a workable design. Students are exposed to research and hands on project-based education with active studio sessions. Visiting faculty and external examiners are professionals and academicians chosen from the field of design. Students develop their design with inputs from highly driven team of faculty members and working professionals.

The K.R. Mangalam University hopes that the outcome-based curriculum will help students in realizing their careers as informed, sensitive and creative architects and designers.

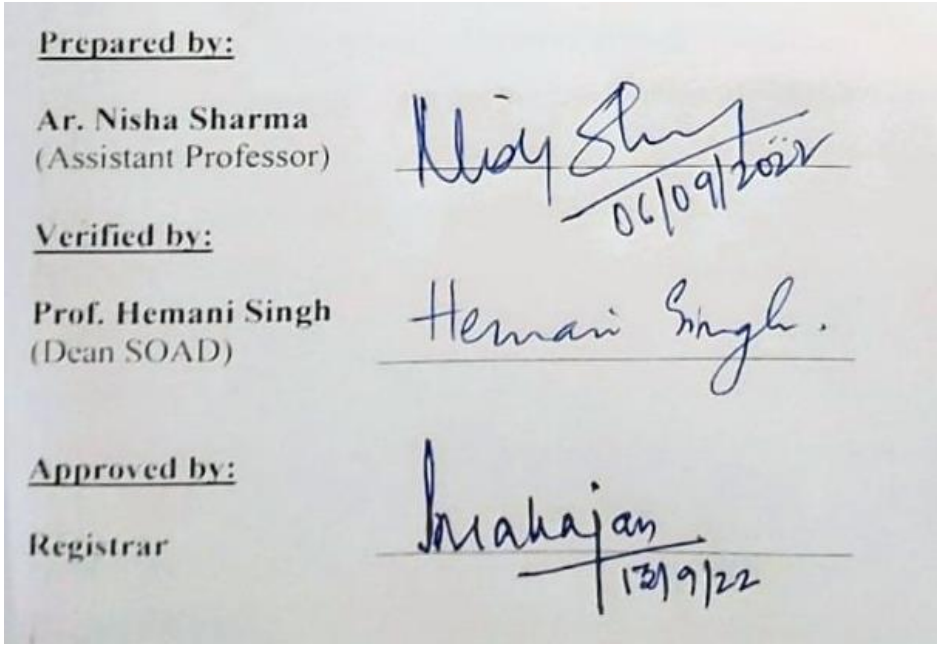
## ACKNOWLEDGEMENT

Program: **Bachelor of Science in Interior Design, B.Sc.(H)ID,**

Year/ Semester: **3 Years/ 6 Semesters (B.Sc. (H) Interior Design)**

Session: **2022-2025 (B.Sc. (H) Interior Design**

The development of an outcome-based Model Curriculum for Undergraduate degree courses in the Department of Design is a result of thoughtful deliberations at various stages of dedicated and specialized experts. This model curriculum has been framed to meet the expectations of an academically challenging environment, develop problem-solving skills by students, and align with current standards and to enrich the students to make them self-enablers and/or match job requirements on successful completion of their degrees.
We are greatly gratified Ms. Manvi Arora for her supervision contribution, guidance, and support throughout the development of this curriculum. Special thanks and gratitude to Prof. P. Prakash, Vice Chancellor, K.R. Mangalam University and Prof. Pushplata Tripathi, Pro-Vice Chancellor and Registrar, K.R. Mangalam University who have been instrumental and encouraging throughout the process of developing this curriculum. Last, but not the least, we also sincerely thank to Ar. Pankaj Dhayal, Ar. Praveen Gupta, Ar. Manika Gupta, Ar. Poorva Priyadarshini who have contributed for development of this curriculum.
We acknowledge by signing below that we have received and access to a copy of syllabus of the Interior Design Programme indicated above. We have redesigned the BID & B.Sc. (H) ID syllabus in Outcome Based Format and understand the programme specific outcomes of the above Programs. Furthermore, we acknowledge that the contents of the BID & B.Sc. (H) ID syllabus have been explained and/or read to us. We understand the requirements concerning textbook(s), assignments, practicum, evaluation and how the final grades will be determined with respect to achieving Course Outcomes.



# CONTENTS

# 1. Introduction

The K.R. Mangalam Group has made a name for itself in the field of education. Over a period of time, the various educational entities of the group have converged into a fully functional corporate academy. Resources at KRM have been continuously upgraded to optimize opportunities for the students. Our students are groomed in a truly inter-disciplinary environment where in they develop integrative skills through interaction with students from engineering, social sciences, management and other study streams.

The K.R. Mangalam story goes back to the chain of schools that offered an alternative option of world-class education, pitching itself against the established elite schools, which had enjoyed a position of monopoly till then. Having blazed a new trail in school education the focus of the group was aimed at higher education. With the mushrooming of institutions of Higher Education in the National Capital Region, the university considered it very important that students take informed decisions and pursue career objectives in an institution, where the concept of education has evolved as a natural process.

K.R. Mangalam University is established under the Haryana Private University Act 2006, received the approval of Haryana Legislature vide Amendment Act # 36 of 2013 and consent of the Hon'ble Governor of Haryana on 11th April 2013, which was published in the Gazette notification vide Leg. No.10/2013, dated 3rd May 2013.

**K. R. Mangalam University Is Unique Because of Its**

Enduring legacy of providing education to high achievers who demonstrate leadership in diverse fields. Protective and nurturing environment for teaching, research, creativity, scholarship, social and economic justice.

# 2. Objectives

a) To impart undergraduate, post graduate and doctoral education in identified areas of higher education.
b) To undertake research programmes with industrial interface.
c) To integrate its growth with the global needs and expectations of the major stake holders through teaching, research, exchange & collaborative programmes with foreign, Indian Universities/Institutions and MNCs.
d) To act as a nodal center for transfer of technology to the industry.
e) To provide job oriented professional education to the Indian student community with particular focus on Haryana.

# 3. About School

**School of Architecture & Design (SOAD)** includes:

**I. Department of Architecture**

i. Bachelor of Architecture (B.Arch): Council of Architecture (COA) approved five years Programme

**II. Department of Design**

| | | |
|---|---|---|
| i. | Bachelor of Interior Design (BID) | : 4 year programme, |
| ii. | B.Sc. Hons. (Interior Design) | : 3 year programme, |
| iii. | DID (Diploma in Interior Design) | : 2 year programme, |
| iv. | Bachelor of Design (B. Des.) | : 4 year programme, |
| v. | B. A (Fashion Design) | : 3 year programme. |

## 3.1. School Vision

The School aspires to become a leading Architecture and Design school by empowering the students with knowledge, confidence and skillset required to navigate their professional path as innovative, creative, socially responsible professionals contributing to nation building through ethical design practices grounded in sustainability and multidisciplinary awareness.

## 3.2. School Mission

a) To establish a foundation for lifelong learning
b) To apply current educational theories that see learning as a process wherein the learner constructs or builds new concepts, focusing on learner-centric education vs. teacher-centric education.
c) To transform the role of teacher to that of facilitator, guide and mentor and not a transmitter of information
d) Enhance employability and entrepreneurship through interdisciplinary curriculum and progressive pedagogy with latest technology to produce graduates capable of critically synthesizing architecture, engineering systems, social sciences and entrepreneurial skills.
e) Developing active leadership skills as project leaders with understanding of various disciplines and collaboration with all stakeholders.
f) To encourage diverse learning styles, acknowledging Kolb's Experiential Learning Theory, which suggests that learning is cyclical and moving through this continuum over time every learner discovers the learning style best suitable to the person.
g) To enable students to learn to find meanings and connections by critical contemplation of available resources, strengthening the innate skills of reflection, evaluation, re-iteration and research.
h) To empower learning by doing. The Design studio is considered both a course and a place of study at the heart of an academic environment fostering design thinking that is simultaneously analytical and creative.
i) Develop ethical professional qualities among the students with understanding of environmental realities and context related design.

**3.3** Sustainable Development Goals:

Through the curriculum, pedagogy and execution of various programmes, SOAD is trying to achieve some of the important Sustainable Development Goals:

1. Quality Education: Achieving inclusive and quality education for all is an important goal that is being achieved through extension activities related to the curriculum. Students of SOAD are doing collaborative work with neighbourhood communities through their design projects.
2. Affordable and Clean Energy: As the demand for cheap, clean energy is rising, SOAD through its curriculum encourages students to understand and apply alternative sources of energy and material.
3. Reduced Inequalities: As there is a large disparity between economic backgrounds that dictate the opportunities available to students for education, SOAD is involved in creating access for students in neighbouring communities to Computer learning through its activities and programmes.
4. Sustainable Cities and Communities: Through courses like Urban Design and Conservation, students are encouraged to think in terms of sustainable communities and cities.
5. Climate Action: Through courses like Environment and Climate and Sustainable Architecture, SOAD is trying to help educate the students about Climate change and action required to deal with it.
6. Life on Land: To reduce the loss of natural habitat, forests and change in soil quality, students are taught sustainable, natural risk measures, resource management through courses on Environment sustainability.
7. Partnerships for the Goals: SOAD collaborates with the local community, vocational training centres and other organisations and universities to research and execute SDG related targets through its curriculum and its practical execution.

**3.4 NEP Implementation:**

The importance of short term professional and vocational courses with exit options has been emphasized in the New Education Policy 2020. The programmes in Interior Design have been prepared keeping in mind the flexibility for students in terms of multiple entry and exit options to streamline their talent and creativity.

1. Bachelor of Interior Design (B.I.D)- 4 year duration
2. B. Sc. (Hons.) Interior Design- 3 year duration.
3. Professional Diploma in Interior Design- 1 year duration.

Also, B.A (Fashion Design) and B. Des Fashion have similar lateral entry option between 3 and 4 year programmes.

## 4. Department of Design

Department of Design offers undergraduate, Bachelor of Interior Design (BID), B.Sc. Hons. (Interior Design), Bachelor of Design (B. Des.) and B. A (Fashion Design) programmes.

### 4.1.Graduate Attributes

GA1: Creative, Sensitive and Adaptable architecture Professional

GA2: Equipped with Professional Ethics

GA3: Good at communication: Interpersonal and graphical.
GA4: Rational decision maker
GA5: Collaborative with multidisciplinary knowledge
GA6: Good at Modern Technology Usage.

## 4.2. Programme Educational Objectives (PEO)

**PEO 1**: To prepare competent interior designers who are sensitive to the needs of the society and environment and can respond to these through their creative design.
**PEO 2**: To instil in interior designers, a commitment to professional ethics and values, and to prepare them to be responsible and ethical professionals.
**PEO 3**: To equip interior designers with the knowledge and skills needed to create a positive and inclusive working environment, and to effectively manage and deal with their teams and clients.
**PEO 4**: To instil analytical, critical and logical thinking in interior designers to enable them to take rational decisions.
**PEO 5**: To prepare interior designers to become effective collaborators and communicators who can work with other professionals to collaborate on all aspects of design.
**PEO 6**: To prepare interior designers to use latest software and technology effectively in drawing and presentation work, and to be able to integrate technology into their design and practices.

## 4.3. Programme Outcomes

PROGRAMME OUTCOMES (POs) of School of Architecture and Design: Students of all undergraduate, Interior Design program at the time of graduation will have-

**PO1. Design and Integration:** Work collaboratively toward design resolution which integrates an understanding of the requirements, contextual and environmental connections, construction systems and services with responsible approach to environmental, historical and cultural conservation.
**PO2. Drawing Work:** Produce professional quality graphic presentations and technical drawings/documents.
**PO3. Critical Analysis:** Demonstrate critical thinking through a self-reflective process of conceptualization and design thinking that is open to consideration of alternative perspectives by analyzing, evaluating, and synthesizing ideas and information.
**PO4. Employability and Interdisciplinary Approach:** Students can work effectively in a multi-disciplinary team in the building and design industry.
**PO5. Conduct**: Work in a manner that is consistent with the accepted professional standards and ethical responsibilities. Conduct independent and directed research to gather information related to the problems in design and allied fields.
**PO6. Communication and Teamwork**: Apply visual and verbal communication skills at various stages of the design and delivery process. Also work as an

integral member in collaboration with multi-disciplinary design and execution teams in the building and design industry.

**PO7. Life-long learning**: Thrive in a rigorous intellectual climate which promotes inquiry through observation and research and to show curiosity to learn about new developments in design.

## 5. The Program: B.Sc. Hons. (Interior Design)

The program, **B.Sc. Hons. (Interior Design)** is designed to attain a high level of understanding and creativity in the arena of interior design. Theory, Studio & Applied subjects are undertaken in the course structure of this program; with crucial inputs by experts in the field of Interior Design, Art, Architecture, Engineering and Technology. At the end of the Program, the students graduate with a strong foundation of multi-disciplinary skills related to aesthetics, environment friendly and sustainable design, construction techniques and space transformations.

**5.1 Eligibility Criteria:** Only candidates who have the following credentials shall be eligible for admission to B.Sc. Hons. (Interior Design) program:

Completed 10+2 or equivalent examination of central/State Govts. In any stream. Lateral admissions shall be done as per the university policies.

**5.2 Career Options:** Opportunities exist in interior design firms, building material firms and doing freelance projects. Some firms also hire interior designers for interior jobs.

**5.3 Program Duration**: Program Duration for B.Sc. Hons. (Interior Design) Program is 3 years (6 semesters).

**5.4 Program Specific Outcomes**

PSO1: Translation of Concept to Presentation and Working Drawings: Translation and development of ideas into graphic representation techniques using a wide variety of traditional and digital media, to reflect on and explain the design process to a wide range of stakeholders.
PSO2: Knowledge of Materials and Building Techniques: Demonstrate the ability to synthesize an integrated design solution by employing appropriate building materials, finishes and quantity estimates and budget management.
PSO3: Design at Varying Scales: Incorporate a wide range of skills and professional knowledge in making sound design decisions across varying scales and levels of complexity in design.
PSO4: Professional Skills: The knowledge and ability to apply a design decision-making process that is client-centered, sustainable, aesthetic, cost effective, and socially responsible.

## 6. Class Timings

The classes will be held from Monday to Friday from 9.10 am to 4.10 pm.

## 7. Course at a Glance

**Three-Year B.Sc. Hons. (Interior Design),**

| | Courses | Credits |
|---|---|---|
| Semester I | 8 | 30 |
| Semester II | 8 | 27 |
| Semester III | 9 | 24 |
| Semester IV | 8 | 24 |
| Semester V | 8 | 24 |
| Semester VI | 5 | 22 |
| **Total** | 46 | **151+ (MOOC Credits)** |

## 8. Syllabus

The syllabi of all courses for new academic session 2022-23 of BID, B.Sc. Hons(Interior Design), and PDID Program offered by SOAD are given in the following pages. The syllabus of PDID is same as B.Sc.(H)ID and BID for first two semesters. The syllabus of B.Sc.(H)ID is same as BID till six semesters. These are arranged in numeric order of the last three digits of the course code. For each course, the first line contains; Course Code, Tittle and credits (C) of the course. This is followed by the course objectives, syllabus (Unit I to IV), Text book and reference books.

## 8.1.Course Structure for B.Sc. (H) Interior Design Program

| SEMESTER-I | | | | |
|---|---|---|---|---|
| S.no | Course Code | | Course Title | C |
| 1 | CC | APID117B | BASIC DESIGN & CREATIVE WORKSHOP | 8 |
| 2 | CC | APID123B | GRAPHIC DESIGN-I | 4 |
| 3 | AECC | UCCS155A | COMMUNICATION SKILLS | 4 |
| 4 | AECC | UCES125A | ENVIRONMENTAL STUDIES | 3 |
| 5 | DSE | APID119B | INTRODUCTION TO BUILDING MATERIALS | 2 |
| 6 | DSE | APID131A | HISTORY OF FURNITURE DESIGN | 2 |
| 7 | OE/GE | UCDM301A | DISASTER MANAGEMENT | 3 |
| 8 | OE/GE | APID133A | COMPUTER SKILLS IN DESIGN-I / COMPUTER SKILLS IN ARCHITECTURE & DESIGN-I (OPEN ELECTIVE-I) | 4 |
| | | | TOTAL | 30 |
| **SEMESTER-II** | | | | |
| S.no | | Course Code | Course Title | C |
| 1 | CC | APID118A | INTERIOR DESIGN I | 8 |
| 2 | CC | APID134A | MATERIALS & CONSTRUCTION -I | 3 |
| 3 | CC | APID124B | GRAPHIC DESIGN-II | 4 |
| 4 | SEC | APID128A | WORKSHOP | 2 |
| 5 | DSE | APID130A | BASICS OF BUILDING SERVICES | 2 |
| 6 | DSE | APID126B | DISPLAY ART-I | 2 |
| 7 | OE/GE | APID136A | THEORY OF DESIGN | 2 |
| 8 | OE/GE | APID132A/ APID138A | COMPUTER SKILLS IN DESIGN-II / COMPUTER SKILLS IN ARCHITECTURE & DESIGN (OPEN ELECTIVE-II) | 4 |
| | | | TOTAL | 27 |
| **SEMESTER-III** | | | | |
| S.no | Course Code | | Course Title | C |
| 1 | CC | APID217B | INTERIOR DESIGN II | 8 |
| 2 | CC | APID237A | MATERIALS & CONSTRUCTION -II | 3 |
| 3 | CC | APID229B | BUILDING SERVICES-I(DRAINAGE, PLUMBING) | 2 |
| 4 | SEC | APID227B | COMPUTER APPLICATION-I | 2 |
| 5 | DSE | APID223A | FURNITURE DESIGN-I | 3 |
| 6 | DSE | APID231A | INDIAN ARCHITECTURAL HISTORY | 2 |

| | | | | |
|---|---|---|---|---|
| 7 | OE/ GE | APID233A | THEORY OF INTERIOR DESIGN-I | 2 |
| 8 | OE/ GE | APID235A | DISPLAY ART-II | 2 |
| 9 | MOOC | | MOOC* | * |
| | | | TOTAL | 24 |
| **SEMESTER IV** | | | | |
| S.no | Course Code | | Course Title | C |
| 1. | CC | APID218B | INTERIOR DESIGN III | 8 |
| 2. | CC | APID238A | MATERIALS & CONSTRUCTION -III | 3 |
| 3. | CC | APID230B | BUILDING SERVICES-II(ELECTRICAL,LIGHTING) | 2 |
| 4. | SEC | APID228B | COMPUTER APPLICATION-II | 2 |
| 5. | DSE | APID224A | FURNITURE DESIGN-II | 3 |
| 6. | DSE | APID232A | RENAISSANCE TO INDUSTRIAL REVOLUTION | 2 |
| 7. | OE/ GE | APID234A | THEORY OF INTERIOR DESIGN-II | 2 |
| 8. | OE/ GE | APID236A | DISPLAY ART-III | 2 |
| | | | TOTAL | 24 |
| **SEMESTER-V** | | | | |
| Sno | | Course Code | Course Title | C |
| 1 | CC | APID317A | INTERIOR DESIGN IV | 10 |
| 2 | CC | APID335A | MATERIALS & CONSTRUCTION -IV | 3 |
| 3 | CC | APID329A | ESTIMATING ,COSTING & SPECIFICATION | 2 |
| 4 | SEC | APID327B | COMPUTER APPLICATION-III | 2 |
| 5 | DSE | APID333A | MODERN WORLD ARCHITECTURE | 2 |
| 6 | DSE | APID323A | FURNITURE DESIGN-III | 3 |
| 7 | OE/ GE | APID331A | DISPLAY ART-IV | 2 |
| 8 | VAC | VAC-1 | VAC-I (HUMAN VALUES & SOCIOLOGY) | 0 |
| | | | TOTAL | 24 |
| **SEMESTER-VI** | | | | |
| S.no | | Course Code | Course Title | C |
| 1 | CC | APID318A | INTERIOR DESIGN V | 10 |
| 2 | CC | APID322A | INTERIOR DESIGN DISSERTATION | 8 |
| 3 | DSE | APIDE1A | ELECTIVE-I (ACCOUSTIC& FIREFIGHTING) | 2 |
| 4 | DSE | APIDE7A | ELECTIVE-II(HVAC) | 2 |
| 5 | VAC | VAC-2 | VAC-II (SUSTAINABILITY IN INTERIORS) | 0 |
| | | | TOTAL | 22 |

* Credits as per MOOC offered by SWAYAM

## DETAILED SYLLABUS

## SEMESTER I

| APID117B | BASIC DESIGN & CREATIVE WORKSHOP | L | T | P | S | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 0 | 8 | 8 |
| Pre-requisites/Exposure | | Designing | | | | |
| Co-requisites | | Creativity | | | | |

### Course Objectives

1. The Course sensitizes to the principles of design and design elements.
2. Exercises complement the theories of design and ensure that the students learn to develop a series of compositions in two and three dimensions.

### Course Outcomes

CO1. Sensitize the students about basics of design with the help of observation, sketching and model making.
CO2. Able to articulate ideas and develop skills to communicate them.
CO3. Able to appreciate design in nature and surroundings.
CO4. Enhance perception and understanding of Design through exercises based on elements of design and its principles.
CO5. Understand design and processes in nature and surrounding through Bio mimicry.

### Catalog Description

Basic Design provides the framework for understanding design as a new language by sensitizing students to the conceptual, visual and perceptual issues involved in the design process.

### Course Content

UNIT I
Introduction to design: Meaning of design, Importance of design, Design in everyday life, Appreciation of Design in nature. Exercises in terms of sketching of objects available in nature and surroundings.
UNIT II

Elements of design: Fundamental elements of design and their definitions-point, line, shape, form, space, texture, value and colour. Forms (2D&3D) created through points (segments), lines (columns) and planes (volumes), and combination thereof; using various techniques & materials like Paper, Card board, Mount board, Thermocool, Styrofoam, Softwood, Acrylic sheets, wires etc.

UNIT III

Principles of Design: Introduction to the principles, of design-unity, balance, symmetry proportion, scale, hierarchy, rhythm, contrast, harmony, focus etc. use of grids, creating repetitive patterns. Theoretical inputs to be followed by exercises to develop the ability to translate abstract forms in 2D & 3D into compositions depicting various principles of design.

UNIT IV

Organic Designs: Appreciation of design through various organic forms in nature & various design principles they exhibit. Introduction to Biomimicry. To be followed by exercises to create organic forms using clay, Plaster of Paris, Metal scrap, Jute fiber etc.

**Text Books:**

1. Ching, Francis D. K., "Architecture: Form, Space, and Order", Wiley and Sons

**Reference Books:**

1. Wallschlaeger, C and Snyder, S.B., "Basic Visual Concepts and Principles for Artists, Architects and Designers", McGraw Hill.
2. Laseau, P, "Graphic Thinking For Architects and Designers", John Wiley and Sons

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Sensitize the students about basics of design with the help of observation, sketching and model making. | PO2, PSO1 |
| CO2 | Able to articulate ideas and develop skills to communicate them. | PO6 |
| CO3 | Able to appreciate design in nature and surroundings. | PO3 |
| CO4 | Enhance perception and understanding of Design through exercises based on elements of design and its principles. | PO3, PO4 |
| CO5 | Understand design and processes in nature and surrounding through Bio mimicry. | PO3, PO7 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | **3** | | | | |
| CO2 | | **3** | | | | | | | **1** | | | |
| CO3 | | | **3** | | | | | | | **3** | | |
| CO4 | | | | **2** | | | | | | | **2** | |
| CO5 | | | | | **1** | | | | | | | **2** |
| CO6 | | | | | | **2** | | | | | | |
| CO7 | | | | | | | **3** | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | Principles of Design | Appreciation of design through various organic forms in nature & various design principles they exhibit |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | Fundamental elements of design, using various techniques & materials | | |
| **Relevance to the Professional Ethics, Gender, Human, Values Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Quality Sustainable Development and Global Citizenship (SDG 4.7)<br>(Inculcate responsible design approaches that are sustainable.Appreciation of the design process involved in resolving architectural design problems of Institutional nature with vernacular design approach.)<br>Make cities and human settlements inclusive, safe,resilient and sustainable (SDG 11)- Integration in Design solutions | | | |
| **NEP** | | Promoting High-quality research (18.1-18.9)- Background study and research of the Design problem through case studies and Literature studies. | Promoting High-quality research (18.1-18.9)- Background study and research of the Design problem through case studies and Literature studies. | Promotion of Indian Languages, Arts & culture (22.1-22.15)- Use of vernacular architecture techniques for concepts and ideas | Adult Education and Lifelong Learning (21.1-21.10) Professional Education (17.1-17.5) (Ability to deign and execute appropriate and original design for final design Proposal) |
| **POE** | | Team Work- Working in groups of 3-4 for data collection and its presentation | Team Work- Working in groups of 3-4 for data collection and its presentation | | |
| **4th IR** | | Hands-on Experience (Design propsal developed by the students with help of faculty inputs) | Hands-on Experience (Design propsal developed by the students with help of faculty inputs) | | |

| APID119B | INTRODUCTION TO BUILDING MATERIALS | L | T | P | S | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To familiarize the students with constituents, properties and uses of traditional building materials used in construction
2. To understand the usage of these traditional building materials in simple building works
3. To familiarize the student with the basic building construction practices on site

**Course Outcomes**

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

CO1. To develop the understanding about elementary building materials & their applications
CO2. Understanding Properties of materials such as physical properties, structural strength, thermal & acoustical behavior
CO3. Understanding direct & indirect insulation, reflection and emission
CO4. Acquire the knowledge about construction materials
CO5. Through experiential learning and participatory learning methods students will get hands on experience of using these materials in varied construction techniques

**Catalog Description**

Develop understanding on building materials according to construction methods. Focus on various building materials would be emphasized based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology. With time, each topic can also focus on latest trends in practice and usage of new technology/materials.

**Course Content**

**Unit-I. Introduction to fundamental components of a building 8Hrs**
Introduction to building construction, understanding relation between architectural designs, building components (Foundation, plinth, wall, sill, lintel, roof, doors, windows, ventilators, staircases, sunshades etc.) along with the building materials

**Unit-II. Introduction to Building Materials (Sand, Clay, Brick, Stone, Lime, Metal and Glass) 8Hrs**

Source of the material, classification, tests and various grades available and their uses, physical and chemical properties

Introduction to ferrous and non-ferrous metals-their properties, types and application in building components

Composition of glass, brief study on manufacture, properties, treatment, uses of glass and types of glass

**Unit-III. Timber 8Hrs**

Types of timber, defects, seasoning and preservation of timber. Ecological impact due to use of wood, deforestation etc. Study of engineered wood used in buildings, i.e., plywood, block boards, particleboards, and other types. Application of timber in building components with Joinery details. Terms defined; mitring, ploughing, grooving, rebating, veneering. Types of joints in wood work: lengthening joints, bearing joints, halving, dovetailing, housing, notching, tusk and tenon etc.

**Unit-IV. Cement 8Hrs**

Manufacturing process, physical and chemical properties, classification of cast-in situ and precast systems. Foundation, column & beam structure, lintels, sunshades, floor and roof slabs in concrete, granolithic flooring, CC blocks (solid & hollow), fly ash bricks as a walling material, cement bonded particle boards. Different grades, composition, preparation and properties of cement mortar. Use and selection of mortar for different construction works.

**Site study and Report:**

The student has to visit a site and study the building with respect to the above-discussed topics and give a brief report with sketches and photographs at the end of the semester.

**Text Books:** As it is a practical and experience-based subject, there are no specific text books.

**Reference Books/Materials**

1. Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi : East-West Press.
2. Foster, J. and Mitchell, S. (1963). Building Construction: Elementary and Advanced, 17th Ed.London : B.T. Batsford Ltd.
3. Hailey and Hancork, D. W. (1979). Brick Work and Associated Studies Vol. II. London : MacMillan.
4. McKay, W. B. (2005). Building Construction Metric Vol. I–IV. 4th Ed. Mumbai : Orient Longman.
5. Moxley, R. (1961). Mitchell's Elementary Building Construction. London : B. T. Batsford.

6. Rangwala, S. C. (1963). Building Construction: Materials and types of Construction. 3rd Ed. New York : John Wiley and Sons.
7. Chudley, R. (2008). Building Construction Handbook. 7th Ed. London : Butterworth-Heinemann.
8. Sushil-Kumar, T. B. (2003). Building Construction. 19th Ed. Delhi : Standard Publishers.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | To develop the understanding about elementary building materials & their applications | **PO3** |
| **CO2** | Understanding Properties of materials such as physical properties, structural strength, thermal & acoustical behavior | **PO7** |
| **CO3** | Understanding direct & indirect insulation, reflection and emission | **PO1** |
| **CO4** | Acquire the knowledge about primary construction materials such as Bricks, stone & wood | **PSO2** |
| **CO5** | Through experiential learning and participatory learning methods students will get hands on experience of using these materials in varied construction techniques | **PO6** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **3** | | | | | | | | | |
| CO2 | | | | | | | **3** | | | | | |
| CO3 | **3** | | | | | | | | | | | |
| CO4 | | | | | | | | | **3** | | | |
| CO5 | | | | | | **3** | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | 3=strongly mapped | | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | To introduce elementary building materials & their applications | | **Bricks:** classification of bricks; properties of constituent components, manufacturing process, quality test of bricks - Burnt Bricks, Brick Tiles, fly ash bricks, Brick Ballast and Surkhi. | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability Entrepreneurship/ Skill Development, Professional Ehics, Gender, Human Values & Sustainability** | **Employability** | methods of quarrying stones; uses, test for stones & quality of good building stones. | | | |
| | **Entrepreneurship** | methods of quarrying stones; uses, test for stones & quality of good building | | processing, seasoning, conversion preservation & storage of timber | |
| | **Skill Development** | | constituents of limestone, manufacturing, uses, test. | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | **Professional Ethics** | | ISI classification | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation (SDG 9)- Awereness and sensitization of innovations in construction technologies covered in Unit I-IV |
| **NEP** | | Adult Education and Lifelong Learning (21.1-21.10)<br>Professional Education (17.1-17.5)<br>Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects |
| **POE** | | Technical Skills that match Industry Needs<br>Focus on Employability Skills (Local/Regional and Global)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |
| **4th IR** | | Skill Development<br>Hands-on Experience<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |

| APID131A | HISTORY OF FURNITURE DESIGN | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Understanding Basics | | | | | |
| **Co-requisites** | Logical thinking | | | | | |

**Course Objectives**

1. Understand historical development of furniture in interiors.
2. Understand development of Early Egyptian to contemporary European, American, Indian & Far eastern countries
3. Understand different period style, their specialty and work of eminent designer.
4. Be able to Develop and formulate future direction of creative furniture.

**Course Outcomes**
On completion of this course, the students will have:

CO1. Have Knowledge of historical development of furniture in interiors.
CO2. Have Knowledge of development of Early Egyptian to contemporary European, American, Indian & Far eastern countries
CO3. Have Knowledge of different period style, their specialty and work of eminent designer which could help them evolve their own styles
CO4. Have Knowledge to develop creative furniture in future.

**Catalogue Description**
With the change of time, space and culture, new design evolve in the society, which is a spontaneous process interlinked with human behaviour, availability of material, techniques, skill and capability with passage of time. It is needless to mention that history plays a significant role in developing and formulating future direction of a creative endeavour like designing Furniture.

**Course Content**

**Unit I: Europe (Till 1800 AD) 8Hrs**

- Gothic
- Italian Renaissance & Baroque
- French Renaissance – Baroque – Regency and Rococo
- English Renaissance – Restoration - William Mary and Queen Anne
- Colonial Period - England—Jacobean – Georgian and Victorian; France—Louis XIV (Rococo) & XV; Early American.
- Federal Period - American— Hitchcock & Empire, Louis XVI (Neoclassical), Chippendale, Adam Brothers, Tudor, Jacobean, Regency, Sheraton

**Unit II: Indian (18th-19th Century) 8Hrs**

- Buddhist Furniture—(Vaharut, Sanchi and Golden age of Furniture & Interior),
- Far East--China, Japan
- Islamic style.

**Unit III: 19th century 8Hrs**

- French Empire,
- English Regency,
- Revivalism & Biedermier;
- Windsor Chair.

**Unit IV: Modern Period (20th century) 8Hrs**

- Art Nouveau and Arts & Crafts Movements (New Constructions & Material),
- Industrial Revolution,
- Mass-produced domestic furniture (Modern society & culture; Social & psychological context;
- General changes in the structure of the industry, technology & culture), Deutscher Werkbund (Start of Industrial Design). Shaker Furnitue & Thonet's Bentwood Furniture.
- The Bauhaus, Craft revival etc. Study of Mies Vader Rohe, Le Corbusier, Frank Lloyd Wright,
- Scandinavian movement: Alver Alto, Arne Jacobsen, Kjaerholm Poul, Klint Karre
- Minimalism & High-tech (Erro Saarinen, Charles Eames)
- Post-modern Style - Ettore Sotsus
- Rathindranath Tagore & Santiniketan style (Art Deco) of Furniture, interior and Artifacts.

**Text Books**

1. The History of Furniture: Twenty-Five Centuries of Style and Design in the Western Tradition, John Morley, Bulfinch (15 November 1999)

**Reference Books/Materials**

1. Furniture Design – An Introduction to Development, Material, and Manufacturing – Stuart Lawson
2. History of Modern Furniture Design – Daniela Karasova
3. Atlas of Furniture Design- Vitra Design Museum
4. The Encyclopedia of Furniture: Third Edition- Joseph Aronson

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| Components | Continuous Assessment test | Mid-term examinations | Quizzes/Tutorials/ Assignment etc | Attendance | End term exams |
|---|---|---|---|---|---|
| Weightage (%) | 10 | 20 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand historical development of furniture in interiors. | **PO1, PO7** |
| **CO2** | Understand development of Early Egyptian to contemporary European, American, Indian & Far eastern countries | **PO1, PO7** |
| **CO3** | Understand different period style, their specialty and work of eminent designer. | **PO1, PO3, PO7** |
| **CO4** | Be able to Develop and formulate future direction of creative furniture. | **PO1, PO3, PO7** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | **3** | | | | | |
| CO2 | **3** | | | | | | **3** | | | | | |
| CO3 | **3** | | **3** | | | | **3** | | | | | |
| CO4 | **3** | | **3** | | | | **3** | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | Introduction to History of Furniture's in Gothic<br>Italian Renaissance & Baroque | Buddihst & Isalmic Style | French Empire,<br>English Regency | Art Nouveau and Arts & Crafts Movements |
| | **Employability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11)- how ealier architecture was and cities developed |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1- 6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) - Learning architectural style |
| **POE** | | Global Education Knowledge - Learning styles |
| **4th IR** | | Skill Embedded Courses Development - Learning relevance |

| APID123B | GRAPHIC DESIGN-I | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 4 | 0 | 4 |
| Pre-requisites/Exposure | Designing | | | | | |
| Co-requisites | Logical thinking | | | | | |

**Course Objectives**

1. To familiarize with drawing tools and accessories
2. To give a basic knowledge of good drafting and lettering techniques
3. To develop comprehension and visualization of geometrical forms
4. To familiarize with the concept of enlarging and reducing scales

**Course Outcomes**

On successful completion of this course, the students have capability to
CO1.Learn fundamental techniques of visual representation
CO2.Develop skills in graphical representation
CO3.Understand graphical representation of landscape elements, human figures in interior spaces
CO4.Introduction to various drafting tools
CO5.Orthographic Projections of solids
CO6.Understand shadows of simple solids.

**Catalog Description**

Introducing students to fundamental techniques of Visual representation and to equip with the basic principles of representation. Enhancing the skills in developing a graphical language of interior design

**Course Content**

**Unit I. Free Hand Drawing and Lettering**

Free hand and mechanical lettering

**Unit II. Basic Technical Drawing**

Concept and types of line, Division of lines and angles, drawing polygons, Inscribing and circumscribing circles in polygons, Drawing geometrical curves helix, Conoid etc.

**Unit III. Orthographic Projections**

Definition, Meaning and concept, Planes of Projections, First angle projections, Projection of points, Lines and planes in different positions. Projection of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions. Sections of

regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in varying conditions of sectional plane.

**Unit IV. Development of Surfaces**

Development of surfaces of cubes, prisms, cylinders, pyramids, cones and spheres, Construction of section, Intersection and interpenetration of solid.

**Text Books:** As it is a studio-based subject, there are no specific text books.

**Reference Books/Materials**


1. IH. Morris, Geometrical Drawing for Art Students - Orient Longman, Madras, 2004.
2. Francis Ching, Architectural Graphics, Van Nostrand Rein Hold Company, New York, 1964.
3. N.D.Bhatt, Elementary Engineering Drawing (Plane and Solid Geometry), Charotar Publishing House, India
4. George K.Stegman, Harry J.Stegman, Architectural Drafting Printed in USA by AmericanTechnical Society, 1966.
5. C.Leslie Martin, Architectural Graphics, The Macmillan Company, New York, 1964


**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Learn fundamental techniques of visual representation | PO2 |
| CO2 | Develop skills in graphical representation | PSO1 |
| CO3 | Understand graphical representation of landscape elements, human figures in interior spaces | PSO3 |
| CO4 | Introduction to various drafting tools | PO1, PO6 |
| CO5 | Orthographic Projections of solids | PO3 |
| CO6 | Understand shadows of simple solids | PO7 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | **3** | | | | | | | | | | |
| CO2 | | **3** | | | | | | | | | | |
| CO3 | | | **3** | | | | | | | | | |
| CO4 | | **3** | | | | | **2** | **2** | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental need** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability / Entrepreneurship/ Skill Development** | **Employability** | Understanding freehand architectural lettering & sheet layout. | | visualizing an object with the help of Orthographic projection with case specific as axis perpendicular to the H.P. & V.P. | |
| | **Entrepreneurship** | Understanding freehand architectural lettering & sheet layout. | | | |
| | **Skill Development** | Brief introduction of drafting instruments & their use | understanding the representation of actual object in the | visualizing an object with the help of Orthographic | Understanding Plan, section and Elevation with respect to the various |

| | | | | | |
|---|---|---|---|---|---|
| | | | drawing to the scale | projection with case specific as axis perpendicular to the H.P. & V.P. | line weight, for drafting purpose. |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | understanding the representation of actual object in the drawing to the scale | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| **UCES125A** | **ENVIRONMENTAL STUDIES** | **L** | **T** | **P** | **S** | **C** |
|---|---|---|---|---|---|---|
| **Version 1.0** | | **3** | **0** | **0** | **0** | **3** |
| **Pre-requisites/Exposure** | Basics of Environment | | | | | |
| **Co-requisites** | Logical thinking | | | | | |

**Course Objectives:**

1. To aware the students about the environment.
2. To learn the students concepts and methods from ecological and physical sciences and their application in environmental problem solving.
3. To think across and beyond existing disciplinary boundaries, mindful of the diverse forms of knowledge and experience that arise from human interactions with the world around them.
4. Communicate clearly and competently matters of environmental concern and understanding to a variety of audiences in appropriate forms.

**Course Outcomes:**

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

CO1. To comprehend and become responsive regarding environmental issues.

CO2. Acquire the techniques to protect our mother earth, as without a clean, healthy, aesthetically beautiful, safe and secure environment no specie can survive and sustain.

CO3. Enable the students to discuss their concern at national and international level with respect to formulate protection acts and sustainable developments policies.
CO4. To know that the rapid industrialization, crazy consumerism and over-exploitation of natural resources have resulted in degradation of earth at all levels.
CO5. Become consciousness about healthy and safe environment.

**Catalogue Description**

This course imparts the basic concepts of environment which enable them to solve basic problems related to their surroundings. This course helps them to get an idea adverse effect of industrialization, population and degradation of natural resources on the environment. The course introduces the concepts of renewable and non-renewable resources.

**Course Content**

**UNIT I** **8 Lectures**

**Environment and Natural Resources:**
Multidisciplinary nature of environmental sciences; Scope and importance; Need for public awareness.
Land resources; land use change; Land degradation, soil erosion and desertification.
Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non- renewable energy sources, use of alternate energy sources, growing energy needs, case studies.
Carbon Footprints

**UNIT II** **16 Lectures**

**Ecosystems and Biodiversity:**
Ecosystem: Definition and Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession.
Case studies of the following ecosystems:
a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem
d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
Biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots ; India as a mega-biodiversity nation; Endangered and endemic species of India; Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity; Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

**UNIT III** **15 Lectures**

Environmental Pollution and Environmental Policies:

Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution Nuclear hazards and human health risks; Solid waste management: Control measures of urban and industrial waste; Pollution case studies.
Sustainability and sustainable development; Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture; Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; wildlife Protection Act; Forest Conservation Act; Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context. Fundamentals and Application of ESG (Environment Social Governance).

**UNIT IV** **11 Lectures**

Human Communities and the Environment and Field work:
Human population growth: Impacts on environment, human health and welfare; Resettlement and rehabilitation of project affected persons; case studies; Disaster management: floods, earthquake, cyclones and landslides; Environmental movements: Chipko, Silent valley, Bishnoi's of Rajasthan; Environmental ethics: Role of Indian and other religions and cultures in environmental conservation; Environmental communication and public awareness, Recent Case studies related to earthquakes, Foods, Famine, Water Crisis/Scarcity, Smog, Water contamination at National and International Level.
Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
Study of common plants, insects, birds and basic principles of identification.
Study of simple ecosystems-pond, river, Delhi Ridge, etc.

**Text Books**

1. Kaushik and Kaushik, Environmental Studies, New Age International Publishers (P) Ltd. New Delhi.

**Reference Books/Materials**

1. A.K. De, Environmental Chemistry, New Age International Publishers (P) Ltd. New Delhi.
2. S.E. Manahan, Environmental Chemistry, CRC Press.
3. S.S Dara and D.D. Mishra, Environmental Chemistry and Pollution Control, S.Chand & Company Ltd, New Delhi.
4. R. Gadi, S. Rattan, S. Mohapatra, Environmental Studies Kataria Publishers, New Delhi.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Exam | Class Test/ Presentation/ Assignment | Attendance | End Term Exam |
|---|---|---|---|---|
| Weightage (%) | 20 | 20 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and Pos | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program |

| | | Outcomes |
|---|---|---|
| CO1 | To comprehend and become responsive regarding environmental issues. | PO6 |
| CO2 | Acquire the techniques to protect our mother earth, as without a clean, healthy, aesthetically beautiful, safe and secure environment no specie can survive and sustain. | PO10 |
| CO3 | Enable the students to discuss their concern at national and international level with respect to formulate protection acts and sustainable developments policies. | PO8 |
| CO4 | To know that the rapid industrialization, crazy consumerism and over-exploitation of natural resources have resulted in degradation of earth at all levels. | PO9 |
| CO5 | Become consciousness about healthy and safe environment. | PO2 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | | | | **3** | | | | | |
| CO2 | | | **2** | | | | | | | | | |
| CO3 | | | | | | | | | | | | |
| CO4 | | | | | | | **3** | | | | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developme nt al needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | India as a mega-biodiversity nation; Endangered and endemic species of India | | Role of Indian and other religions and cultures in environmental conservation |
| | **Global** | | Conservation of biodiversity | Nuclear hazards and human health risks | Human population growth: Impacts on environment, human health and welfare; Resettlement and rehabilitation of project affected persons |
| **Relevance To the Employabi lity/ Entreprene ur ship/ Skill Developme nt** | **Employabi lity** | | | | |
| | **Entreprene ur ship** | | | | |
| | **Skill Developme nt** | | | | |
| **Relevance to the Profession al Ethics, Gender, Human Values, Environme nt & Sustainabil ity** | **Profession al** | | | | |
| | **Ethics** | | | | |
| | | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | Human population growth: Impacts on environment, human health and welfare |
| | **Environme nt & Sustainabil ity** | | Multidisciplin ary nature of environmental sciences; | | Environmental Pollution and Environmental Policies |

| | | | | | |
|---|---|---|---|---|---|
| | | | Scope and importance; Need for public awareness | | |

| | | | | |
|---|---|---|---|---|
| **SDG** | Conserve and sustainably use the oceans, seas and marine resources for sustainable development (SDG 14) Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (SDG 15) - Learning environmental needs and solving them through architecture | Take urgent action to combat climate change and its impacts (SDG 13) - Learning environmental needs and solving them through architecture | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (SDG 8) - understanding of the environmnet and its relevance . | Make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11) - understanding of the environmnet and its relevance . |
| **NEP** | Equitable and Inclusive Education: Learning for All (6.1- 6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1-24.5) - understanding of the environmnet and its relevance. | | | |
| **POE** | Focus on Employability Skills (Local/Regional and Global)<br>Case Competitions<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - understanding of the environmnet and its relevance . | | | |
| **4th IR** | Skill Embedded Courses Development<br>Skill Development -Students develop their skill | | | |

| C | DISASTER MANAGEMENT | L | T | P | S | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | **3** | **0** | **0** | **0** | **3** |
| **Pre-requisites/Exposure** | Basic disaster management strategies | | | | | |
| **Co-requisites** | Logical thinking | | | | | |

**Course Objective:**

1. To create awareness about various types of disasters.
2. To educate the learners about basic disaster management strategies.
3. To examines disaster profile of our country and illustrates the role played by various governmental and non- governmental organizations in its effective management.
4. To acquaints learners with the existing legal framework for disaster management.

**Course Outcomes:**

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

CO1. Provide students an exposure to disasters, their significance, and types.

CO2. Ensure that the students begin to understand the relationship between vulnerability, disasters, disaster prevention and risk reduction.

CO3. Provide the students a preliminary understanding of approaches of Disaster Risk Reduction (DRR)

CO4. Develop rudimentary ability to respond to their surroundings with potential disaster response in areas where they live, with due sensitivity.

**Course Content**

**UNIT I** **10 Lectures**

**Introduction to Disasters**:

Concept and definitions- Disaster, Hazard, vulnerability, resilience, risks.
Different Types of Disaster: Causes, effects and practical examples for all disasters. Natural Disaster: such as Flood, Cyclone, Earthquakes, Landslides etc. Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological Disasters, Accidents (Air, Sea, Rail & Road), Structural failures (Building and Bridge), War & Terrorism etc.

**UNIT- II** **8 Lectures**

**Disaster Preparedness**

Concept and Nature, Disaster Preparedness Plan, Prediction, Early Warnings and Safety Measures of Disaster, Role of Information, Education, Communication, and Training, Role of Government, International and NGO Bodies, Role of IT in Disaster Preparedness, Role of Engineers on Disaster Management, Relief and Recovery, Medical Health Response to Different Disasters

**UNIT III** **10 Lectures**

**Rehabilitation, Reconstruction and Recovery**

Reconstruction and Rehabilitation as a Means of Development, Damage Assessment, Post Disaster effects and Remedial Measures, Creation of Long-term Job Opportunities and Livelihood Options, Disaster Resistant House Construction, Sanitation and Hygiene,

Education and Awareness, Dealing with Victims' Psychology, Long-term Counter Disaster Planning, Role of Educational Institute.

**UNIT IV** **8 Lectures**

**Disaster Management in India**

Disaster Management Act, 2005: Disaster management framework in India before and after Disaster Management Act, 2005, National Level Nodal Agencies, National Disaster Management Authority

Liability for Mass Disaster: Statutory liability, Contractual liability, Tortious liability, Crimin al liability, Measure of damages

Epidemics Diseases Act, 1897: Main provisions, loopholes.

Applications of AI and ML in Disaster Management and risk predictions.

Project Work: The project/ field work is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety. Projects must be conceived based on the geographic location and hazard profile of the region where the institute is located.

**Reference Books:**


1. Government of India, Department of Environment, Management of Hazardous Substances Control
2. Act and Structure and Functions of Authority Created Thereunder.
3. Indian Chemical Manufacturers' Association & Loss Prevention Society of India, Proceedings of the National Seminar on Safety in Road Transportation of Hazardous Materials: (1986).
4. Author Title Publication Dr. Mrinalini Pandey Disaster Management Wiley India Pvt. Ltd.
5. Tushar Bhattacharya Disaster Science and Management McGraw Hill Education (India) Pvt. Ltd.
6. Jagbir Singh Disaster Management: Future Challenges and Opportunities K W Publishers Pvt. Ltd.
7. J. P. Singhal Disaster Management Laxmi Publications.
8. Shailesh Shukla, Shamna Hussain Biodiversity, Environment and Disaster Management Unique Publications
9. C. K. Rajan, Navale Pandharinath Earth and Atmospheric Disaster Management: Nature and Manmade B S Publication
10. Indian law Institute (Upendra Baxi and Thomas Paul (ed.), Mass Disasters and Multinational Liability: The Bhopal Case (1986)
11. Indian Law Institute, Upendra Baxi (ed.), Environment Protection Act: An Agenda for Implementation (1987)
12. Asian Regional Exchange for Prof. Baxi., Nothing to Lose But our Lives: Empowerment to Oppose
13. Industrial Hazards in a Transnational world (1989)
14. Gurudip Singh, Environmental Law: International and National Perspectives (1995), Lawman (India) Pvt. Ltd.
15. Leela Krishnan, P, The Environmental Law in India, Chapters VIII, IX and X (1999), Butterworths, New Delhi.


**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination, Examination Scheme:**

| Components | Mid Term Exam | Class Test/ Presentation/ Assignment | Attendance | End Term Exam |
|---|---|---|---|---|
| Weightage (%) | 20 | 20 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and Pos | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Provide students an exposure to disasters, their significance, and types. | PO1 |
| CO2 | Ensure that the students begin to understand the relationship between vulnerability, disasters, disaster prevention and risk reduction. | PO7 |
| CO3 | Provide the students a preliminary understanding of approaches of Disaster Risk Reduction (DRR) | PO5 |
| CO4 | Develop rudimentary ability to respond to their surroundings with potential disaster response in areas where they live, with due sensitivity. | PO10 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | **2** | | | | | | | | | |
| CO2 | | | **2** | | | | | | **1** | | | |
| CO3 | | | **2** | | | | | | | | | **2** |
| CO4 | | | | **3** | | | **2** | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | 3=strongly mapped | | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | Disaster Management Act in India |
| | **Global** | Causes, effects and practical examples for all disasters | Disaster Preparedness Plan, Prediction, Early Warnings and Safety Measures of Disaster | Reconstruction and Rehabilitation as a Means of Development, Damage Assessment, Post Disaster effects and Remedial Measures | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | Creation of Long-term Job Opportunities and Livelihood Options, Disaster Resistant House Construction, Sanitation and Hygiene | The project/ field work is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| **& Sustainability** | **Human Values** | | Relief and Recovery, Medical Health | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | Response to Different Disasters | | |
| | **Environment & Sustainability** | Causes, effects and practical examples for all disasters | | Reconstruction and Rehabilitation as a Means of Development, Damage Assessment, Post Disaster effects and Remedial Measures | |
| **SDG** | | Youth and Adult Literacy (SDG 4.6) | Sustainable Development and Global Citizenship (SDG 4.7) | Sustainable Development and Global Citizenship (SDG 4.7) | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels (SDG 16) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| C | COMMUNICATION SKILLS | L | T | P | S | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | **4** | **0** | **0** | **0** | **4** |
| **Pre-requisites/Exposure** | Basic Professional communication skills | | | | | |
| **Co-requisites** | Professional ethics | | | | | |

**Course Objective:**

1. Understand the basics of Grammar to improve written and oral communication skills.
2. Understand the correct form of English with proficiency
3. Improve student's personality and enhance their self-confidence.
4. Improve professional communication.
5. Enhance academic writing skills.

**Course Outcomes**

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

CO1. Understand the basics of Grammar to improve written and oral communication skills
CO2. Understand the correct form of English with proficiency
CO3. Improve student's personality and enhance their self-confidence
CO4. Improve professional communication
CO5. Enhance academic writing skills

**Catalogue Description**

This learning program with its practice-based learning tasks will facilitate the learners to enhance their communication skills in a modern and globalized context, enhance their linguistic and communicative competence and hone their interpersonal skills.

**Course Content**

U NIT I : 16 lectures
Introduction to Communication: Importance of Communication Skills, Meaning, Forms & Types of Communication; Process of Communication; Principles of Effective Communication/7Cs, Barriers in Communication (Interpersonal, Intrapersonal and Organizational).

UNIT II: 16 lectures
Academic Writing: Précis (Summary – Abstract – Synopsis – Paraphrase – Précis: Methods), Letter & Résumé (Letter Structure & Elements – Types of letter: Application & Cover - Acknowledgement – Recommendation – Appreciation – Acceptance – Apology – Complaint –Inquiry).Writing a proposal and synopsis. Structure of a research paper. Citations and plagiarism.

UNIT III: 16 lectures
Technology-Enabled Communication: Using technology in communication tasks, E-mails, tools for constructing messages, Computer tools for gathering and collecting information; Different virtual medium of communication.

UNIT IV: 16 lectures
Building Vocabulary: Word Formation (by adding suffixes and prefixes); Common Errors; Words Often Confused; One word substitution, Homonyms and Homophones; Antonyms &Synonyms, Phrasal Verbs, Idioms & Proverbs ( 25 each); Commonly used foreign words(15 in number);

UNIT V : 16 lectures
Personality Development: Etiquettes& Manners; Attitude, Self-esteem & Self-reliance; Public Speaking; Work habits (punctuality, prioritizing work, bringing solution to problems), Body Language: Posture, Gesture, Eye Contact, Facial Expressions; Presentation Skills/ Techniques.

**Text book [TB]:**

1. Kumar, Sanjay and Pushplata.*Communication Skills*.Oxford University Press, 2015.

**Reference Books/Materials**

1. Mitra, Barun K. *Personality Development and Soft Skills*. Oxford University Press, 2012.
2. Tickoo, M.L., A. E.Subramanian and P.R.Subramaniam.*Intermediate Grammar, Usage and Composition.* Orient Blackswan, 1976.
3. Bhaskar, W.W.S., AND Prabhu, NS., " English Through Reading", Publisher: MacMillan,1978
4. Business Correspondence and Report Writing" -Sharma, R.C. and Mohan K. Publisher: Tata McGraw Hill1994
5. Communications in Tourism & Hospitality- Lynn Van Der Wagen, Publisher: HospitalityPress
6. Business Communication-K.K.Sinha
7. Essentials of Business Communication By Marey Ellen Guffey, Publisher: ThompsonPress
8. How to win Friends and Influence People By Dale Carnegie, Publisher: Pocket Books
9. Basic Business Communication By Lesikar&Flatley, Publisher Tata McGraw Hills
10. Body Language By Allan Pease, Publisher SheldonPress

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination,**
Examination Scheme:

| Components | Mid Term Exam | Class Test/ Presentation/ Assignment | Attendance | End Term Exam |
|---|---|---|---|---|
| Weightage (%) | 20 | 20 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and Pos | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Understand the basics of Grammar to improve written and oral communication skills | PO1, PSO1 |
| CO2 | Understand the correct form of English with proficiency | PO9,PSO1 |

| | | |
|---|---|---|
| CO3 | Improve student's personality and enhance their self-confidence | PO9 |
| CO4 | Improve professional communication. | PO9 |
| CO5 | Enhance academic writing skills | PO3,PSO1 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | | | **1** | | | | | | **1** |
| CO2 | | | | | | **2** | | | | | | **2** |
| CO3 | | | | | | **3** | | | | | | **2** |
| CO4 | | | | | | **3** | | | | | | **2** |
| CO5 | | | | | | **3** | | | | | | **2** |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | 3=strongly mapped | | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global development al needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Process of Communication; Principles of Effective Communication | Academic Writing | Technology-Enabled Communication | Personality Development |
| | **Entrepreneurship** | Process of Communication; Principles of Effective Communication | | Technology-Enabled Communication | Personality Development |
| | **Skill Development** | Process of Communication; Principles of Effective Communication | Academic Writing | Technology-Enabled Communication | Personality Development |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | Personality Development |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Youth and Adult Literacy (SDG 4.6) - - learning architectural expressions |
| **NEP** | | Adult Education and Lifelong Learning (21.1-21.10)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Technology Use & Integration (23.1- 23.13)<br>Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>- exploring ways to communicate |
| **POE** | | Technical Skills that match Industry Needs<br>Focus on Employability Skills (Local/Regional and Global) - exploring ways to communicate |
| **4th IR** | | Hands-on Experience<br>Skill Development<br>Soft Skills -exploring ways to communicate |

| **APID133A** | **COMPUTER SKILLS IN DESIGN-I (OPEN ELECTIVE-I)** | L | S | T | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 0 | 0 | 4 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To familiarize students with software associated with essential skills needed to create, edit and print professional looking documents using text, tables, lists and pictures.
2. Development with software associated with basic tools such as Microsoft word, excel and PowerPoint, Google forms and Google Docs.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1.Learn Basic skills of computer

CO2.Integrate software learning tool MS office package

CO3.Understand use and application of software's for making presentation, resume, cover letter, survey& registration forms.

**Catalog Description**

Empowering students to use computers as basic skill and to familiarize them with presentation techniques.

**Course Content** **Total Hours: - 64**

**Unit-I. Word processing: -** **(12 Hours)**

Introduction to Applications of MS Office in presentation: Microsoft Word.

**Unit-II. Introduction to PowerPoint: -** **(18 Hours)**

Presentation graphics software program which allows you to create professional-looking electronic slide shows. PPT is used to present information in an organized manner to an individual or group. Using clip art, sound clips, movie clips, graphs, organization charts, imported Web screens, and many other features, you can easily create a presentation that will impress your audience and convey your message clearly and professionally

**Unit-III. Introduction to Excel: -** **(12 Hours)**

A spread sheet program designed for everyday tasks such as setting up a budget, maintaining an address list, or keeping track of a list of to-do items.

**Unit-IV. Introduction to Google forms: -** **(08 Hours)**

Students can create and analyse surveys right in web browse you get instant results as they come in. And, you can summarize survey results at a glance with charts and graphs.

**Application:-** **(14 hours)**

Hands on all of the software to create documents, table, SmartArt, presentation, survey forms.

**Reference Books/Materials**

1. A Comprehensive Guide to Getting Started with Word, PowerPoint, Excel, Access, and Outlook Book by Linda Foulkes.
2. Excel 2016 All-in-One for Dummies Book by Greg Harvey
3. An In-depth Practical Guide for Microsoft PowerPoint 2021 Book by Matt Vic

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

| Examination Scheme: Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**
**Mapping between COs and POs**

| Mapping between COs and Pos | | |
|---|---|---|
| **Course Outcomes (COs)** | | **Mapped Program Outcomes** |
| CO1 | Learn Basic skills of computer | PO1 |
| CO2 | Integrate software learning tool MS office package | PO2, PO7 |
| CO3 | Understand use and application of software's for making presentation, resume, cover letter, and survey& registration forms. | PO7,PSO1, PSO3 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | | **2** | | | | **1** | | | | |
| CO2 | **3** | | | **2** | | | | **2** | | | | |
| CO3 | **2** | | | **2** | | | | **3** | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and Rendering | |
| | **Entrepreneurship** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and Rendering | |
| | **Skill Development** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and Rendering | |
| **Relevance to** | **Professional Ethics** | | | Modelling and basic | |

| | | | | | |
|---|---|---|---|---|---|
| **the Ethics, Gender, Human Values, Environment & Sustainability** | | | | rendering techniques, using Google Sketchup or equivalent | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4)<br>Computer Aided Drafting and rendering skills to make architectural drawings digitally |
| **NEP** | | Optimal Learning Environments and Support for Students (12.1-12.10)- |
| **POE** | | Technical Skills that match Industry Needs<br>(Knowledge of softwares) |
| **4th IR** | | Skill Embedded Courses Development(Knowledge of softwares) |

## SEMESTER II

| APID118A | INTERIOR DESIGN I | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 8 | 0 | 8 |
| Pre-requisites/Exposure | | Designing | | | | |
| Co-requisites | | Creativity | | | | |

**Course Objectives**

1. Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct in the students.

**Course Outcomes**

CO1. Understand human dimensions and their functions, space-activity by study of Anthropometrics.
CO2. Study of relationships based on measured drawings of simple living units.
CO3. Enhance perception based on human dimension through study of scale in Interior design
CO4. Understand scale through measured layouts of interior spaces.
CO5. Understand perception and perspective by exploring layouts of outdoor sitting spaces.

**Catalog Description**

Introduction to basic design and the basic understanding of form and space in Interior. On completion of the course student will have fair idea about scale and measurements of single activity spaces.

**Course Content**

To Study Anthropometrics to understand human dimensions and their functions, space-activity, relationships, measured drawings of simple living units.
To study Scale in Interior design to increase perception and sensitivity of the students about space in terms of balance & proportions.
This can be best understood through one or two short exercises of studying and measuring the interior layout of personal space for living, eating, sleeping, cooking, toilets, laundry area, outdoor sitting spaces such as verandah, balcony etc.
Suggestive mode of work-The studio work can be divided in stages
Prototype study, Problem identification, Site analysis (if needed), Preliminary sketch etc. Models of the final design necessary for greater comprehension.

**Text Books:**

1. Ching, Francis D. K., "Architecture: Form, Space, and Order", Wiley and Sons

**Reference Books:**

1. Wallschlaeger, C and Snyder, S.B., "Basic Visual Concepts and Principles for Artists, Architects and Designers", McGraw Hill.
2. Laseau, P, "Graphic Thinking For Architects and Designers", John Wiley and Sons

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and Pos | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand human dimensions and their functions, space-activity by study of Anthropometrics. | **PO3, PO7** |
| **CO2** | Study of relationships based on measured drawings of simple living units. | **PO1, PO2** |
| **CO3** | Enhance perception based on human dimension through study of scale in Interior design | **PO3, PO7** |
| **CO4** | Understand scale through measured layouts of interior spaces. | **PO1,PO2** |
| **CO5** | Understand perception and perspective by exploring layouts of outdoor sitting spaces. | **PO1, PO2, PO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | |
| CO2 | **3** | | | | | | | | | | | |
| CO3 | | | **2** | | | | | | | | | |
| CO4 | | **2** | | | | | | **2** | | | | |
| CO5 | | | **3** | | | | | | | | | |
| CO6 | | | | **3** | | | | | | | | |
| CO7 | | **3** | | | | | | **3** | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | To Study Anthropometrics to understand human dimensions and their functions, | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | To Study Anthropometrics to understand human dimensions and their functions, space-activity, relationships, measured drawings of simple living units | short exercises of studying and measuring | Design of mono-cellular-units/structures | Design of multiple but simple activity spaces |
| | **Entrepreneurship** | To Study Anthropometrics to understand human dimensions and their functions, space-activity, relationships, measured drawings of simple living units | | Design of mono-cellular-units/structures | |
| | **Skill Development** | | short exercises of studying and measuring | | Design of multiple but simple activity spaces |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | Design of multiple but simple activity spaces |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | |
|---|---|---|---|
| **SDG** | | Quality Education - Learning base to design | Skills for Decent Work (SDG 4.4)<br>Safe and Inclusive Learning Environments (SDG 4.a)- Developing skills to learn designing |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) - Base of Architetcure | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - Case study | |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning keys for designing | |

| APID134A | MATERIALS & CONSTRUCTION -I | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | - | - | 3 | - | 3 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To acquaint the students to usage of building materials such as Brick and Stone

2. To familiarize the students with construction techniques for use of the above materials in building works and joinery in carpentry
3. To familiarize the student with the basic building construction practices on site/yard

**Course Outcomes**

On completion of this course, the students will be able to
CO1. Focus on various building materials and construction techniques would be emphasized based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology
CO2. With time, each topic can focus on latest trends in practice and usage of new technology/materials. Emphasis is given on importance of water and damp proofing in building construction

**Catalog Description**

Focus on various building materials and construction techniques would be based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology. With time, each topic can also focus on latest trends in practice and usage of new technology/materials.
Each material would be taught in a manner such that, its application would be discussed starting from window/door openings, walling material, and floor & flooring.

**Course Content**

**Unit-I. Brick Masonry**
About material: Manufacturing process, physical and chemical properties Applications: Foundation, walling material, types of brick walls, brick masonry (English, Flemish, rat trap bond) detailed brick layout at corners, junctions and brick piers, style of construction viz., exposed brick work, jack arch roof, brick paving, brick arches and domes, reinforced brick roofs and walls, brick piers etc.

*Sets of drawings: types of bricks, types of bonds like; header and stretcher bond, English, and Flemish bonds, Rat trap bond, types of material indications, t- junctions and cross-junctions, Piers, Jamb.*

**Unit-II. Stone Masonry**

Geological Classification of rocks – stones (granite, laterite, quartzite, marble, slates), uses of stone, deterioration & preservation of stone, availability, properties and application of stones for construction in India. Stone for finishing, cutting & polishing. Granite & Marble. Types of stone masonry.

*Sets of drawings: Rubble stone masonry and Ashlar stone masonry with arches*

**Site study and Report:** The student has to visit a site and study the building with respect to the above-discussed topics and give a brief report with sketches and photographs at the end of the semester.

**Text Books:** As it is a studio based subject, there are no specific text books.

**Reference Books/Materials**

1. Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi : East-West Press.
2. Bindra, S.P. and Arora, S.P. (2000). Building Construction: Planning Techniques and Methods of Construction, 19th Ed. New Delhi : Dhanpat Rai Publications.
3. Ching, F. D. K. (2000). Building Construction Illustrated. 3rd Ed. New York : Wiley.
4. Edward, A. and Piano, J. (2009). Fundamentals of Building Construction: Materials and Methods. 5th Ed. Hoboken : John Wiley & Sons.
5. Foster, J. S. (1963). Mitchell Building Construction: Elementary and Advanced. 17 Th Ed. London : B.T. Batsford Ltd.
6. McKay, W. B. (2005). Building Construction Metric Vol. 1–IV, 4th Ed. Mumbai :Orient Longman.
7. Rangwala, S. (2004). Building Construction. 22nd Ed. Anand.: Charotar Pub. House.
8.Sushil-Kumar, T. B. (2003). Building Construction, 19 Th Ed. Delhi : Standard Publishers.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and Pos** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Focus on various building materials and construction techniques would be emphasized based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology | **PSO2, PO2** |
| **CO2** | With time, each topic can focus on latest trends in practice and usage of new technology/materials. Emphasis is given on importance of water and damp proofing in building construction | **PO3, PO6, PO7** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | **2** | **3** | | **3** | **3** | | **3** | | **2** | |
| CO2 | **3** | **3** | | **2** | | | | | | | **3** | **2** |
| CO3 | | | **3** | | **2** | | **3** | | **3** | | | |
| CO4 | **3** | | **3** | | | | | | | | | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | Clay and Clay products: mud blocks, Earth stabilized blocks, Burnt Bricks, terracotta tiles, brick ballast and surkhi, flyash blocks, concrete blocks | Types of stone used in building construction, Rubble and Ashlar masonry | | |
| | **National** | | | | |
| | **Global** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Introduction to basic building materials and tools<br>Brick Masonry & masonry work techniques | Stone and Stone Masonry | | |
| | **Entrepreneurship** | | Stone and Stone Masonry | | |
| | **Skill Development** | Introduction to basic building materials and tools<br>Brick Masonry & masonry work techniques | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | Brick Masonry and cavity walls including masonry work techniques such as jointing, pointing and plastering. | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |
| **SDG** | | Sustainable Development and Global Citizenship (SDG 4.7)<br>Safe and Inclusive Learning Environments (SDG 4.a) - Learning about materials and constructing sustainable environment with them | | | |

| | | |
|---|---|---|
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) - Base of Architetcure |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - Case study |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning keys for designing |

| APID136A | THEORY OF DESIGN | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 2 | - | - | - | 2 |
| Pre-requisites/Exposure | Interest in Basic Design and keen Observation | | | | | |
| Co-requisites | Translation of Design Ideas | | | | | |

**Course Objectives**

1. To Understand 2D and 3D elements conceptually as well as their usage in Architectural Design.
2. To Understand of spaces, the connections in terms of circulation and order that governs the arrangement of spaces
3. To Understand the connections of spaces and their translation into drawing of plans and sections.

**Course Outcomes**

On successful completion of this course, the students have capability to:
CO1. Develop the ability to break spaces into elements and understand conceptually the spaces in simple forms.
CO2. Understand the breaking up of built form into functions and connections and the order that puts them together.
CO3. Understand the spaces and their communication through architectural drawings.

**Catalog Description**

Students understand the full range of design elements, principles, spaces, connections, and their interplay in human context. They explore these through a study of simple terms, their translation into form and space.
They then understand how architecture and other design integrate all these to make functional spaces and built form. This understanding can become the basis of all deign fields in being able to translate colors, textures, elements and ideas into workable design manifestations.

**Course Content**

**UNIT I** **8Hrs**

- The course begins with a simple understanding of 2D design elements like point, lines and planes. While all of us can easily visualize a straight line in two dimensions, the sequence of creating planes, shapes, forms, spaces, enclosures and buildings in 3D is of great significance to a student of Architecture. All these are understood conceptually as well as in the context of built form. Definition of conservation and its socially accepted meanings, objectives.
- Theories, Principles and concepts of conservation and its application. –
- Legislation in conservation.

**UNIT II** **8Hrs**

- Then the understanding is developed further by studying Circulation (Horizontal and Vertical and Circulation and Spaces between Buildings) and Order (Geometrical, structural, dimensional, material, spatial).

**UNIT III** **8Hrs**

- Theory of Design helps develop an understanding of elements and principles of design that eventually guide the students in pursuing practical design problems. The students learn to articulate the concepts and manifest them into drawings by understanding the relationship of Plan, Section and Elevation, Architectural Scale and Programming in Architectural Design.

**UNIT IV** **8Hrs**

- Elements of Biomimicry, parametricism, deconstructivism are studied to understand spaces as design beyond lines and planes. These concepts introduce students to fluid shapes and inspiration from nature.

**Text book [TB]:**

**1.** Francis D. K. Ching," Architecture, Form, Space and Order".

**Reference book(s) [RB]:**

1. Francis D. K. Ching, "Introduction to Architecture".
2. Francis D. K. Ching, "Design Drawing".

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and Pos | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Develop the ability to break spaces into elements and understand conceptually the spaces in simple forms. | PO3 |

| | | |
|---|---|---|
| **CO2** | Understand the breaking up of built form into functions and connections and the order that puts them together. | **PO1, PSO3** |
| **CO3** | Understand the spaces and their communication through architectural drawings. | **PSO1, PO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **3** | | | | | | | | | |
| CO2 | **3** | | | | | | | | | **3** | | |
| CO3 | | | | **3** | | | | **3** | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | Elements of Biomimicry, parametricism, deconstructivism |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Sustainable Development and Global Citizenship (SDG 4.7)<br>Safe and Inclusive Learning Environments (SDG 4.a) - Learning about materials and constructing sustainable environment with them |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) - Base of Architetcure |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - Case study |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning keys for designing |

| APID124B | GRAPHIC DESIGN-II | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | - | - | 4 | - | 4 |
| Pre-requisites/Exposure | | | | | | |
| Co-requisites | | | | | | |

**Course Objectives**

1. To Introducing students to fundamental techniques of architectural representation and to equip with the basic principles of representation
2. Enhancing the skills in developing a graphical language of architecture

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1.Understand three dimensional objects and various complex sections with the help of geometrical views, perspectives and Sciography
CO2.Understand graphical representation of landscape elements, human figures in interior spaces
CO3.Able to differentiate between 2 D and 3D
CO4.Understand the development of forms and how they look when seen from the different eye level and angles and their representation on paper
CO5.Learn different techniques and mediums for representation are understood based on their functions
CO6.Learn to exhibit ideas on the table practically by exploring the design development stages

**Catalog Description**

Introducing students to fundamental techniques of Visual representation and to equip with the basic principles of representation. Enhancing the skills in developing a graphical language of interior design

**Course Content**

**Unit-I. Isometric and Axonometric Views**
Introduction to views, types and advantages. Isometric, Axonometric and Oblique view of objects, building components and Interior of the room

**Unit-II. Fundamentals of Perspectives-I**
Introduction to perspectives, difference between views & perspectives, Types of perspectives: one point, two point & three-point, Anatomy of Perspectives - Objects, study of picture plane, station point, vanishing point, Eye level, Ground level etc., its variation & effects.

**Unit-III. Sciography**

Introduction to Sciography, Principles of shade & shadow, Shadows of lines, planes & simple solids due to near & distant sources of light, shadows of architectural elements, Construction of sciography on building, Application of sciography on pictorial views.

**Unit-IV. Rendering Techniques**

Representation technique of plan, elevation & section in architectural drawing. Kinetics & Optics, Monochromatic & different themes of rendering, architectural rendering techniques using pen & ink, color, values, tones, and general approach to rendering. Architectural representation of trees, hedges, foliage, human figures, cars, symbols etc., exposure to various mediums of presentation

**Text Books:** As it is a studio-based subject, there are no specific text books.

**Reference Books/Materials**


1. Atkins, B. (1986). Architectural Rendering. California : Walter Foster Art Books.
2. Batley, C. (1973). Indian Architecture. Bombay : D. B. Taraporevale Sons.
3. Bhatt, N. D. (2003). Engineering Drawing. Anand : Charotar Publishing House.
4. Ching, F. D. K. (2009). Architectural Graphics. 5th Ed. Hoboken : John Wiley & Sons.
5. Ching, F. D. K. (2011). A Visual Dictionary of Architecture. 2nd Ed. Hoboken:John Wiley & Sons.
6. Dinsmore, G. A. (1968). Analytical Graphics. Canada : D.Van Nostrand, Company Inc.
7. Halse, A. O. (1972). Architectural rendering; the techniques of contemporary presentation. 2nd Ed. New York : McGraw-Hill.
8. Holmes, J. M. (1954). Applied Perspective. London : Sir Isaac, Piotman and Sons Ltd.
9. Narayana, K. L. and Kannaiah, P. (1988). Engineering Graphics. New Delhi : Tata McGraw-Hill.
10. Norling, E. (1969). Perspective drawing. California : Walter Fostor Art Books.
11. Robert, W. G. (2006). Perspective: From Basic to Creative. 1st Ed. London : Thames and Hudson.


**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and Pos** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand three dimensional objects and various complex sections with the help of geometrical views, perspectives and Sciography | **PO1** |
| **CO2** | Understand graphical representation of landscape elements, human figures in interior spaces | **PO3** |
| **CO3** | Able to differentiate between 2 D and 3D | **PO7** |
| **CO4** | Understand the development of forms and how they look when seen from the different eye level and angles and their representation on paper | **PSO3** |
| **CO5** | Learn different techniques and mediums for representation are understood based on their functions | **PO1** |
| **CO6** | Learn to exhibit ideas on the table practically by exploring the design development stages | **PSO1** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **3** | | | | | | **1** | | | | |
| CO2 | **1** | **2** | | | | | | **2** | | | | |
| CO3 | **1** | **3** | | | | | | **3** | | | | |
| CO4 | **2** | **3** | | | | | | **3** | | | **2** | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the** | **Employability** | construct three dimensional views of basic and | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Employability / Entrepreneurship/ Skill Development** | | complex geometrical shapes | | | |
| | **Entrepreneurship** | | Make perspective by measuring point method, Angular method and parallel perspective | Drawing shades and shadows of lines, planes, solids in plan, elevations and isometric view | |
| | **Skill Development** | construct three dimensional views of basic and complex geometrical shapes | Make perspective by measuring point method, Angular method and parallel perspective | Prepare drawings on the sciography | Rendering techniques |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | , Prepare drawings on the presentation of interior and exterior views in one point perspective and section perspectives | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4)<br>Safe and Inclusive Learning Environments (SDG 4.a)-<br>Developing skills to learn designing |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) - Learning architectural representation |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects - Learning architectural representation |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning architectural skills |

| **APID126B** | **DISPLAY ART- I** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 2.0** | | - | - | - | 4 | 2 |
| **Pre-requisites/Exposure** | Observation & explorative thinking | | | | | |
| **Co-requisites** | Creativity | | | | | |

**Course Objectives**

1. To understand diverse display spaces and their expression.
2. To focus on material exploration.
3. To explore methods and techniques of display items
4. To understand role of lighting and various aspects of it in display.

**Course Outcomes**

On successful completion of this course, the students have capability to
CO1. Understand diverse space typologies and sensory aspect related to them.
CO2. Develop handling of different materials.
CO3. Developing finer aesthetics and handling of living spaces like residence
CO4. Lighting and showcasing of diverse products.

**Catalog Description**

The course is about aspects of display in different typology of spaces. The aspects that will be covered in every semester will focus on

- Material exploration, that includes, understanding material properties, handling and tools of display.
- Display methods, that includes, strategic placement of a display item.
- Lighting, that includes, type of lighting, placement and its impact.
- Overall impact- The uniqueness of display item & impact on the viewer.

**Course Content**

Typology of space- Living spaces- Residences
Suggestive materials- Paper mache, used cartons, old cloths, cable & wires, hardware, broken tiles etc

**Text Books:**
This course does not have a text book as this is a practical subject with hands on learning and working on display objects and techniques.

**Reference book(s) [RB]:**

1. Francis D K Ching; Interior Design Illustrated, 4th Edition; John Wiley and Sons, USA. Time Saver Standards, Neufert.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand diverse space typologies and sensory aspect related to them. | **All except PO5** |
| **CO2** | Develop handling of different materials. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |
| **CO3** | Develop finer aesthetics and handling of living spaces like residence | **All except PO5** |
| **CO4** | To understand role of lighting and various aspects of it in display. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **3** | **3** | **3** | | **3** | **3** | **3** | **2** | **2** | **2** | **2** |
| CO2 | **3** | | **3** | **3** | | | | | **3** | **3** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | | | | | | | | |
| CO4 | **2** | | **2** | | | | | | **3** | | | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | Typology of space- Living spaces- Residences | Suggestive materials- Paper mache, used cartons, old cloths, cable & wires, hardware, broken tiles etc | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | Paper mache, used cartons, old cloths, cable & wires, hardware, | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | broken tiles etc | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Make cities and human settlements inclusive, safe, resilient and sustainable (SDG 11)- how ealier architecture was and cities developed |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1- 6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) - Learning architectural style |
| **POE** | | Global Education Knowledge - Learning styles |
| **4th IR** | | Skill Embedded Courses Development - Learning relevance |

| APID128A | WORKSHOP | L | T | P | C |
|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 4 | 2 |
| Pre-requisites/Exposure | Basic Designing | | | | |
| Co-requisites | Logical thinking | | | | |

**Course Objectives**

1. To introduce the carpentry tools, processes and wood working machines and learn about carpentry joints and their uses.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. To get introduced to the carpentry tools and wood working machines along with welding part.

CO2. To understand processes involved in woodwork & welding.

CO3. Learning To learn about carpentry & welding joints.

CO4. Inculcate To learn about the uses of carpentry & welding joints.

**Catalog Description**

Understand the details of Carpentry and Welding tools & Techniques.

**Course Content**

**UNIT I**

- To introduce carpentry tools, processes and wood working machines. To prepare three dimensional solids like cube, cuboids, pyramids, spheres, cone and cylinders and make a composition.

**UNIT II**

- Carpentry joints- Technical terms, classification of joints: lengthening, spliced or longitudinal joints; bearing joint, framing joint, angle/ corner joint, oblique/shouldered joint, widening or side joint
- Fastenings, Carpentry tools and various connecting devices
- To demonstrate the use of carpentry tools in making joints such as Dovetail Joint, Mortise and Tenon Joint, Lap joint, Butt Joint etc. to be used for making furniture.

**UNIT III**

- To prepare joints (Lap and Butt) by metal arc welding

**UNIT IV**

- To create complex three-dimensional forms for models using carpentry methods

**Text Books:**

1. . Raghuwanshi, B.S., “A Course in Workshop Technology – ‘Vol. I and II’, Dhanpat Rai and Co.

**Reference Books:**


1. Morris, M., "Architecture and the Miniature: Models", John Wiley and Sons
2. Mills, Criss B., "Designing with Models: A Studio Guide to Making and Using Architectural Models", Thomson and Wadsworth.
3. 3 McKay, W. B., Building Construction (Metric) (vol. 1 to 4).


**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | To get introduced to the carpentry tools and wood working machines along with welding joints.. | **PO1** |
| **CO2** | To understand processes involved in wood work & welding | **PO2, PO3** |
| **CO3** | To learn about carpentry & welding joints. | **PO3, P07** |
| **CO4** | To learn about the uses of carpentry & welding joints. | **PO5, PO6** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | **1** | | | | | | | | |
| CO2 | | | | **2** | | | **1** | | | | | |
| CO3 | | | | **3** | | | | | **2** | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | To prepare three dimensional solids like cube, cuboids, pyramids, spheres, cone and cylinders | To demonstrate the use of carpentry tools in making joints such as Dovetail Joint, Mortise and Tenon Joint, Lap joint, Butt Joint etc. to be used for making furniture | To prepare joints (Lap and Butt) by metal arc welding | To create complex three-dimensional forms for models using carpentry methods |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment& Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4) - developing the skills |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) - Learning architectural representation |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects - Learning architectural representation |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning architectural skills |

| Course Code | Course Title | L | T | P | S | C |
|---|---|---|---|---|---|---|
| **APID130A** | **BASICS OF BUILDING SERVICES** | 2 | 0 | 0 | 0 | 2 |
| Version 1.0 | | | | | | |
| Pre-requisites/Exposure | Understanding basics | | | | | |
| Co-requisites | Logical thinking | | | | | |

**Course Objectives**

To understand the relationship of building services with interiors in small scale projects

**Course Outcomes**

On successful completion of this course, the students have capability to

**CO1.** Understand the basic principles of building services
**CO2.** Understand the layering of different services in interiors
**CO3.** Gain knowledge of services in interiors
**CO4.** Read all services in layout drawings and to relate them to interiors

**Course Content**

**UNIT I: (Lectures- 10)**

- Need to protect water supply, Requirements of water supply to different types of buildings.
- Purpose and principles of sanitation, Collection and conveyance of waste matter
- The plumbing and sanitary system for individual spaces e.g. kitchen, toilet, wash area, utility etc.

**UNIT II: (Lectures- 10)**

- Terminology and symbols (as per NBC/NEC) for electric installations in buildings.
- Familiarization to various lighting accessories, wires and cables, metering, distribution panels / boards etc. for single and three phase supply.
- The understanding of electrical needs for individual spaces e.g. Living room, Dining room, Bed room, Kitchen, Toilet, Staircases, and Corridors etc. The electrical layout drawing for a residence.

**UNIT III: (Lectures- 10)**

- Causes and spread of fire, Classes of fire.
- Fire Detection Equipment's, Firefighting systems, Fire Extinguishers, Means of escape and other systems
- The fire system for individual spaces e.g. Living room, Dining room, Bed room, Kitchen, Staircases, and Corridors etc. The fire layout drawing for a residence.

**UNIT IV: (Lectures- 10)**

- Fundamentals of Air Conditioning System Design.
- Air conditioning systems and types, Air Distribution Systems
- The understanding of AC for individual spaces e.g. Living room, Dining room, Bed room, Kitchen, Staircases, etc. The AC layout drawing for a residence.

**Textbooks**
National Electrical Code
National Building Code of India (Latest Edition), Bureau of Indian Standards.

**Reference Books/Materials**

1. The construction of building by Barry-vol.-5.
2. Water supply and Sanitation by Charanjit Shah.
3. Water supply & sanitary Engineering by S.C.Rangawala.
4. Water supply & sanitary Engineering by S. K.Hussain.
5. Raina K.B. & Bhattacharya S.K., Electrical Design estimating and costing, New Age International (P) Limited,
6. Security/Fire Alarm Systems: Design, Installation, and Maintenance by John E. Traister (1995).
7. New Delhi,2004.A.F.C. Sherratt, "Air-conditioning and Energy Conservation", The Architectural Press, London, 1980.

**Modes of Evaluation: Quiz/Assignment/ Presentation/ Extempore/ Written Examination**
**Examination Scheme**

| Components | Mid Term Exam | Class Test/ Presentation/ Assignment | Attendance | End Term Exam |
|---|---|---|---|---|
| Weightage (%) | 20 | 20 | 10 | 50 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | |
| CO2 | | **3** | | | | | | | **2** | | | |
| CO3 | | | **3** | | | **3** | | | | **2** | | **2** |
| CO4 | | | | **3** | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | Water supply design of a residence: Connection with water mains, design of Underground & Overhead water tanks | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Quality Education | | | |
| **NEP** | | Optimal Learning Environments and Support for Students (12.1-12.10)- | | | |
| **POE/4th IR** | | | | | |

| APID132A | COMPUTER SKILLS IN DESIGN-II | L | S | T | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 4 | 0 | 0 | 4 |
| Pre-requisites/Exposure | | | | | | |
| Co-requisites | | | | | | |

**Course Objectives**

1. Development of effective presentation techniques
2. Development with software associated with Drafting, making drawing, formatting, and presentation.
3. Presenting drawings in a detailed and visually impressive manner
4. To provide a thorough grounding in AutoCAD, learning how to produce accurate 2D drawings.

**Course Outcomes**

On successful completion of this course, the students have capability to
CO1. Learn drafting software AutoCAD.
CO2. Understanding the perspective, limits and units which is required for drafting a 2D drawing with AutoCAD to improve your productivity
CO3. Apply basic AutoCAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions
CO4. Ability to manipulate drawings through editing and plotting techniques.

**Catalog Description**

Empowering students to use computers as 2D drafting tool.

**Course Content:-**

**Unit-I Introduction to Microsoft Paint.**

Use of Microsoft Paint to open, edit and save an image file such as a scanned image that you create with the scanner, or an image that you draw or "paint" digitally from scratch

**Unit-II. Introduction to AutoCAD.**

Overview of AutoCAD & drafting principles the interface of AutoCAD – New file, Save, and open DWG files. Drafting fundamentals: Line, circle, arc, ellipse, erase, oops.

**Unit-III. Basic Drawing Skills using Drawing Aids.**

Introduction to coordinate systems Absolute, relative rectangular, relative polar coordinate systems, Perspectives, Drafting settings, Object snap, Dynamic inputs, Limits and units editing fundamentals: Move, copy, array, break, Mirror, offset, etc.

**Unit-IV. Navigation Techniques and Editing Entities.**

Navigation techniques – zoom, pan, steering wheels selection techniques – Box, fence, group, multiple, single, auto more drafting: Solid, donut. Editing techniques: Text, mtext, styles, color, line type, line weight.
Editing with grips -Stretch, scale, extend, join, trim, rotate, trim, lengthen

**Reference Books/Materials**

1. Gindis, E. (2014). Up and Running with AutoCAD 2015: 2D & 3D Drawing and Modelling. Oxford : Elsevier.

2. Seidler, D. R. (2007). Digital Drawing for Designers: A Visual Guide to AutoCAD 2012. London Fairchild Publications.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Examination Scheme: Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**
**Mapping between COs and POs**

| Course Outcomes (COs) | | Mapped Program Outcomes |
|---|---|---|
| CO1 | Learn drafting software AutoCAD. | PO1 |
| CO2 | Understanding the perspective, limits and units which is required for drafting a 2D drawing with AutoCAD to improve your productivity | PO3, PO6, PO7 |
| CO3 | Apply basic AutoCAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions | PO7,PSO1, PSO3 |
| CO4 | Ability to manipulate drawings through editing and plotting techniques | PO7,PSO1, PSO2,PSO3 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | | **2** | | | | **1** | | | | |
| CO2 | **3** | | | **2** | | | | **2** | | | | |
| CO3 | **2** | | | **2** | | | | **3** | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| Relevance to the local, national, Regional,global developmental needs | Local | | | | |
| | Regional | | | | |
| | National | | | | |
| | Global | | | | |
| | Employability | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Entrepreneurship** | | | | |
| | **Skill Development** | Introduction to AutoCAD as 3D drafting tool | Presentations | Advanced 3D Modelling | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4)<br>Computer Aided Drafting and rendering skills to make architectural drawings digitally |
| **NEP** | | Professional Education (17.1-17.5) |
| **POE** | | Technical Skills that match Industry Needs<br>(Knowledge of softwares) |
| **4th IR** | | Skill Embedded Courses Development(Knowledge of softwares) |

## SEMESTER III

| **APID217B** | **INTERIOR DESIGN II** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 8 | 0 | 8 |
| **Pre-requisites/Exposure** | Designing | | | | | |
| **Co-requisites** | Creativity | | | | | |

**Course Objectives**

1. Sensitizing students to be more observant to their surroundings and promoting it as a basic creative instinct.

**Course Outcomes**

CO1. Study of relationships based on measured drawings of simple living units.
CO2. Focus on studying patterns in horizontal circulation in built spaces.
CO3. Learning basic understanding of form and space in architecture.
CO4. Learn by intense site analysis a better comprehension towards solution.

**Catalog Description**

Introduction to basic design and the basic understanding of form and space in architecture. On completion of the course student will have fair idea about scale and measurements of horizontal circulation in built spaces.

**Course Content**

- To Study Anthropometrics to understand human dimensions and their functions, space-activity, relationships, measured drawings of small-scale buildings.
- To study Scale in Interior design to increase perception and sensitivity of the students about space in terms of balance & proportions.
- focus on Anthropometry, Design methodology, Conceptual exploration and representation Creativity, Scale/proportion, Documenting case study, Graphic design (page layout and composition), Concepts sketching, Application of design principles and elements
- The list of suggested Interior design exercise:
- Single room residence, kindergarten school, Interior Designer/Designer's studio, small cafeteria, Bank extension counter, Departmental store, local police station, local post office, products used by architects in the studio, products for children in kindergarten etc.

**Text Books:**

Ching, Francis D. K., "Architecture: Form, Space, and Order", Wiley and Sons

**Reference Books:**

1. Wallschlaeger, C and Snyder, S.B., "Basic Visual Concepts and Principles for Artists, Architects and Designers", McGraw Hill.
2. Laseau, P, "Graphic Thinking For Architects and Designers", John Wiley and Sons

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Study of relationships based on measured drawings of simple living units. | PO1, PO2 |
| CO2 | Focus on studying patterns in horizontal circulation in built spaces. | PO3, PO5 |

| | | |
|---|---|---|
| **CO3** | Learning basic understanding of form and space in architecture | **PO3, PO5** |
| **CO4** | Learn by intense site analysis a better comprehension towards solution. | **PO3, PO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | |
| CO2 | **2** | | | | | | **3** | | | | | |
| CO3 | | | | **3** | | | | | | | | |
| CO4 | | | | | | | | | **3** | | | |
| CO5 | | **3** | | | | | | **3** | | | | |
| CO6 | | | | | | | **3** | | | | | **3** |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, regional andglobal developmental needs** | **Local** | Anthropometry | | | The students should be encouraged to endorse interior designs in their Design proposals, Presentation drawings & Models |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | study of built form and its relationship to the site, surroundings and climatic setting | | |
| **Relevance Tothe Employability/ Entrepreneurship/ Skill Development** | **Employability** | | study of built form and its relationship to the site, surroundings and climatic setting | | The students should be encouraged to endorse interior designs in their Design proposals, Presentation drawings & Models |
| | **Entrepreneurship** | | study of built form and its relationship to the site, surroundings and climatic setting | | The students should be encouraged to endorse interior designs in their Design proposals, Presentation drawings & Models |

| | | | | | |
|---|---|---|---|---|---|
| | **Skill Development** | | | | The students should be encouraged to endorse interior designs in their Design proposals, Presentation drawings & Models |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | Introduction to others role players in the architectural design process – the client and users. | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment& Sustainability** | | | | |

| | | | | |
|---|---|---|---|---|
| **SDG** | | Quality Sustainable Development and Global Citizenship (SDG 4.7)<br>(Inculcate responsible design approaches that are sustainable.Appreciation of the design process involved in resolving architectural design problems of Institutional nature with vernacular design approach.)<br>Make cities and human settlements inclusive, safe,resilient and sustainable (SDG 11)- Integration in Design solutions | | |
| **NEP** | | Promoting High-quality research (18.1-18.9)- Background study and research of the Design problem through case studies and Literature studies | Promotion of Indian Languages, Arts & culture (22.1-22.15)- Use of vernacular architecture techniques for concepts and ideas | Adult Education and Lifelong Learning (21.1-21.10)<br>Professional Education (17.1-17.5)<br>(Ability to design and execute appropriate and original design for final design Proposal) |

| APID237A | MATERIALS & CONSTRUCTION -II | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | - | - | 3 | - | 3 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To acquaint the students to usage of building materials such as Timber and Hardware
2. To familiarize the students with construction techniques for use of the above materials in building works and joinery in carpentry
3. To familiarize the student with the basic building construction practices on site/yard

**Course Outcomes**

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

CO1. Understand different types of timber products in detail

CO2. Understand details of type doors, windows and ventilators

CO3. Understanding details of joinery and fixing in wooden staircase

**Catalog Description**

Focus on various building materials and construction techniques would be based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology. With time, each topic can also focus on latest trends in practice and usage of new technology/materials.
Emphasis is given on importance Timber as material in building construction.

**Course Content**

**Unit-I. Doors**

Types of doors based on the make (battened, ledged, braced, flush, panelled, framed and etc.) usage (pivoted, single leaf, double leaf), hardware fixtures, joinery, door-fixing details, and wooden material used in doors.

*Set of drawings: Types of timber doors (joinery and fixing details)*

**Unit-II. Windows and Ventilators**

Types of windows based on the make (pivot, louvered, fixed, bay window, etc.) with wood as material having hardware fixtures, joinery and window fixing details.

*Set of drawings: Types of timber windows and ventilators (joinery and fixing details).*

**Unit-III. Staircases/ Mezzanine Floors**

Definitions, Tread, riser, stringer, nosing, flight, landing, head room, handrail, balusters, newel post etc. Types of staircases: straight, dog-legged, open-well, geometrical, circular, spiral, bifurcated. Construction details of wooden finishes will be focused.

*Set of drawings: Types of Staircase and timber stairs joinery and fixing details.*

**Site study and Report:** The student has to visit a site and study the building with respect to

the above-discussed topics and give a brief report with sketches and photographs at the end of the semester.

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning and working on techniques.

**Reference Books/Materials**


1. Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi : East-West Press.
2. Bindra, S.P. and Arora, S.P. (2000). Building Construction: Planning Techniques and Methods of Construction, 19th Ed. New Delhi : Dhanpat Rai Publications.
3. Edward, A. and Piano, J. (2009). Fundamentals of Building Construction: Materials and
4. Methods. 5th Ed. Hoboken : John Wiley & Sons.
5. Foster, J. S. (1963). Mitchell Building Construction: Elementary and Advanced. 17 Th Ed. London : B.T. Batsford Ltd.
6. MacMillan.
7. McKay, W. B. (2005). Building Construction Metric Vol. 1–IV, 4th Ed. Mumbai: Orient Longman.
8. Rangwala, S. (2004). Building Construction. 22nd Ed. Anand.: Charotar Pub. House.
9. .Sushil-Kumar, T. B. (2003). Building Construction, 19 Th Ed. Delhi : Standard Publishers.


**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| **Components** | **Mid Term Jury** | **End Term Internal Jury** | **End Term Studio Exam** | **End Term External Jury** |
|---|---|---|---|---|
| **Weightage (%)** | **20** | **30** | **20** | **30** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand different types of timber products in detail | **PSO2** |
| **CO2** | Understand details of type doors, windows and ventilators | **PO2,PSO3** |
| **CO3** | Understanding details of joinery and fixing in wooden staircase | **PO3, PO6** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | **3** | | | **3** | | | | | **3** |
| CO2 | | **2** | **2** | **3** | **2** | | **3** | | | **2** | | **3** |
| CO3 | | | **3** | | | **2** | | | | | | **3** |
| CO4 | | **2** | **3** | | | | | **2** | | | **3** | |
| CO5 | **2** | | | **3** | **2** | | | | **2** | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Construction details of doors | Construction detail for windows & ventilators | Construction detail for staircase & mezzanine | |
| | **Entrepreneurship** | Construction details of doors | Construction detail for windows & ventilators | Construction detail for staircase & mezzanine | |
| | **Skill Development** | Construction details of doors | Construction detail for windows & ventilators | Construction detail for staircase & mezzanine | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | Construction details of doors | Construction detail for windows & ventilators | Construction detail for staircase & mezzanine | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation (SDG 9)- Awereness and sensitization of innovations in construction technologies covered in Unit I-IV |
| **NEP** | | Adult Education and Lifelong Learning (21.1-21.10)<br>Professional Education (17.1-17.5)<br>Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |
| **POE** | | Technical Skills that match Industry Needs<br>Focus on Employability Skills (Local/Regional and Global)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |
| **4th IR** | | Skill Development<br>Hands-on Experience<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |

| **APID233A** | **THEORY OF INTERIOR DESIGN I** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 2.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Understanding of Historical Context | | | | | |
| **Co-requisites** | Integration of traditional art forms and crafts | | | | | |

**Course Objectives**

1. To familiarize the students about basic terminologies related to Craft, Art and Interior design.
2. To familiarize the students with craft and traditional art forms, influence of climate, social and cultural aspects of a place as per the requirement in context of India.
3. To make students realize the overall impact of above on the different region of India.
4. In contemporary terms the students develop an overall understanding of these traditional art forms and their use, interpretation in today's world.

**Course Outcomes**

On successful completion of this course, the students have capability to:

CO1. Understand basic terminologies related to Art, Craft and Interior design. This will help to develop vocabulary of the field of Interior Design.
CO2. Establish the link between climate, society and the development of Art and Craft as an outcome of these conditions.
CO3. Understand impact of above on regions of India
CO4. Overall understanding of traditional art form and their interpretation in today's world.

**Catalog Description**
This course familiarizes the students about traditional art forms, influence of climate, social and cultural aspects as per the need. The course also makes the students understand the origin, need of traditional art as a consequence of living conditions and culture of a place.

**Course Content**

To understand the traditional Art and handicrafts of different regions of India and their contemporary interpretation in Design.

**Unit I** **8Hrs**

- Understanding basic terminologies related to Art, Craft and Interior design. Like space/ building typologies, space making element, structure, function, aesthetics, colors, shades, craft, art, façade, Indoor & Outdoor spaces etc. to develop vocabulary of the field of Interior Design. Discuss the terms with the help of at least 6 different types of spaces, like living spaces, Retail spaces, work spaces, public spaces, restorative spaces and transient spaces.

**Unit II** **8Hrs**

- Understanding traditional Art forms in India. an overview
- Understanding handicrafts of India; an overview.

**Unit II** **8Hrs**

- In line with unit II, exploring art forms of India in terms of Clothing, Ornaments, Paintings, sculpture, architecture, decorative arts and design art.
- Understanding of various painting styles of various regions of India – Tanjore, Mahbubani, Pattachitra, Rajasthani Miniature Painting etc.

**8Hrs**

**Unit IV**

- Understanding handicrafts of various regions of India. Discuss about not less than 6 crafts like furniture, wall murals, carvings, puppet making, pottery etc their techniques and communities who makes them.

- contemporary and other international Interior styles from world like Mediterranean/ Spanish etc.
- Interpretation of traditional Art and Craft in contemporary terms with the help of examples of different spaces – adaptable reuse. (Example can be Indian and International too)

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| **Components** | **Mid Term Jury** | **End Term Internal Jury** | **End Term Studio Exam** | **End Term External Jury** |
|---|---|---|---|---|
| **Weightage (%)** | **20** | **30** | **20** | **30** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand basic terminologies related to Art, Craft and Interior design. This will help to develop vocabulary of the field of Interior Design | **PO1, PO4, PO7, PSO2, PSO5** |
| **CO2** | Establish the link between climate, society and the development of Art and Craft as an outcome of these conditions. | **PO1, PO4, PO7, PSO2, PSO5** |
| **CO3** | Understand impact of above on regions of India | **PO1, PO4, PO7, PSO3, PSO5** |
| **CO4** | Overall understanding of traditional art form and their interpretation in today's world. | **PO1, PO4, PO7, PSO3, PSO5** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | | | | | | | | | |
| CO2 | | | | | | | | | | | | |
| CO3 | | | | | | | | | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Sustainable Development and Global Citizenship (SDG 4.7)<br>Safe and Inclusive Learning Environments (SDG 4.a) - Learning about materials and constructing sustainable environment with them |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) - Base of Architetcure |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - Case study |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning keys for designing |

| APAR231A | INDIAN ARCHITECTURAL HISTORY | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Knowledge of basic history. | | | | | |
| **Co-requisites** | -- | | | | | |

**Course Objectives:**

1. To generate an understanding about the development of civilizations and its impact on contemporary architecture.
2. Understanding of the periods in terms of their context of location, climate as well as the geographical, cultural, historical, economic and political influences of the time.
3. To understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present.

**Course Outcomes**

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

CO1. Understand architecture of the period as a solution to the need or demands of the society.

CO2. Understanding the development of civilizations and its impact on contemporary architecture.

CO3. Generate an understanding about the development and evolution of architecture as a culmination of various factors like location, climate, socio-cultural, historical, economic and political influences.

**Catalog Description**

History of Indian Architecture intends to form a connection between past and present. The student starts to understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present.

The course shall include sketching and understanding of historical buildings, historical analysis, and visit to places of historical importance. The students are introduced to a chronological study of Indian architecture starting with development of civilizations to contemporary times. The students understand the building types and development of architectural form and character based on tangible (materials, construction techniques) and intangible factors (belief systems, needs of different religions, dynasties and influences).

**Course Content**

**Unit I:** **8Hrs**

After understanding the development of architecture in different parts of the world, the focus shifts to the Indian subcontinent. Picking up from Vedic period after Indus Valley

Civilization, the students are exposed to Buddhist, Hindu and Islamic architecture with emphasis on Mughal Architecture.

**Unit II:** **8Hrs**

Starting with the origin and influence of Buddhist Architecture (Ajivkyas and Cave Architecture, growth of Sanchi, toranas, chaitya halls, Amravati stupa) with emphasis on symbolism and structural functions. Also * Buddhist Rock Cut Architecture (Hinayana and Mahayana): Includes Early Hinayana Phase and Buddhist Viharas and Monastries. Also includes caves in western ghats, Karli, Nalanda, Sarnath and Gaya. Also Ajanta Caves and the subsequent early Hindu shrines.

**Unit III:** **8Hrs**

Hindu Architecture continues with details of Temle Architecture: Nagara Style, Dravidian Style, Vesara Style of temples and Forts, Palaces, stepwells, gates and baradaris etc. across the country with special emphasis on the famous temples of North and South India.

**Unit IV:** **8Hrs**

Islamic Architecture includes rise of Islam, Islamic architecture & its influence. It includes mosques, tombs, forts and their elements like domes, minarets, arches with reference to the Slave, Khalji, Tughlaq, Sayyid, Lodhis and Shershah Suri regimes and their architecture. The course culminates with Mughal Architecture and includes Evolution of Mughal Architecture with emphasis on Akbar's contribution (Fatehpur Sikri, Humayun's Tomb) and Shah jahan's architecture (Shahajahanabad, Red Fort, Jama Masjid and Taj Mahal).

**Text Books**

1. Grover, S. K., "Buddhist and Hindu Architecture in India", CBS.
2. Grover, S. K., "Islamic Architecture in India", CBS

**Reference Books/Materials**

1. Brown, Percy, "Indian Architecture – Vol I and II", Apt Books.
2. Maheshwari and Garg, "Ancient Indian Architecture", CBS. .
3. Thapar, B., "Introduction to Indian Architecture", Periplus Editions.
4. Surendra S., "Indian Architecture: Hindu, Buddhist and Jain", Ajanta Offset and Packaging Ltd.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand architecture of the period as a solution to the need or demands of the society. | **PO1, PO3** |
| **CO2** | Understand the development of civilizations and its impact on contemporary architecture. | **PO3** |
| **CO3** | Generate an understanding about the development and evolution of architecture as a culmination of various factors like location, climate, socio-cultural, historical, economic and political influences. | **PO4, PO7** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | **2** | | | **3** | | | **2** | | | | **3** |
| CO2 | | | **3** | | | | | | | **3** | | |
| CO3 | | **2** | | **1** | | **2** | **3** | | **1** | **2** | **2** | **3** |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability Entrepreneur** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **ship/ Skill Development** | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Culture & Heritage (SDG 11.4)<br>Understanding of civilizations and its impact on contemporary architecture for better, inclusive and open cities | | | |
| **NEP** | | Promotion of Indian Languages, Arts & culture (22.1-22.15)- Reflectance upon Indian art and architecture history | | | |
| **POE/4th IR** | | | | | |

| APID223A | **FURNITURE DESIGN I** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | - | - | 3 | - | 3 |
| **Pre-requisites/Exposure** | | Basic knowledge of design | | | | |
| **Co-requisites** | Anthropometry | Anthropometry | | | | |

**Course Objectives**

1. To know evolution of furniture from Ancient to present: Various stylistic transformations.
2. To develop a thorough understanding about conceptualization and visualization of furniture.
3. Use of standards, functions of spaces and application of knowledge gained from other subjects, in design.
4. To design furniture in line with Interior Design project of current semester.

**Course Outcomes**

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

CO1. Know the history of furniture and used materials for it (region specific).

CO2. Visualize, analyzed already built furniture.

CO3. Create simple furniture using basic techniques.
CO4. Describe and evaluate the methods of material manipulation and design.

**Catalog Description**

To share knowledge basics of furniture design, their context and methods of making.

**Course Content**

- Overview of, history of furniture: Various stylistic transformations, Furniture designers and movements, Analysis of furniture in terms of human values, social conditions, technology and design criteria.
- Furniture design parameters: function, aesthetic and structure
- Types of furniture
- Develops systematic design approach and space planning through furniture as elements of design.

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning.

**Reference Books/Materials**

1. Time-Saver Standards for Architectural Design Data
2. Architectural Standard Ernst Peter Neufert Architects Data
3. Time-Saver Standards for Building Types

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid-term Jury | End - term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Know the history of furniture and used materials for it (region specific). | **PO4, PO7, PSO3, PSO5** |
| **CO2** | Visualize, analyzed already built furniture. | **PO3.PO4, PO7, PSO3, PSO5** |
| **CO3** | Create simple furniture using basic techniques. | **PO1, PO2, PO3, PO4, PO5, PO7, PSO3, PSO5** |
| **CO4** | Develops systematic design approach and space planning through furniture as elements of design. | **PO1, PO2, PO3, PO4, PO5, PO7, PSO3, PSO5** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | **3** | | | **3** | | | **3** | | **3** |
| CO2 | | | **3** | **3** | | | **3** | | | **2** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | **2** | | **3** | | | **3** | | **3** |
| CO4 | **3** | **3** | **3** | **3** | **2** | | **3** | | | **2** | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Various stylistic transformations, Furniture designers and movements, Analysis of furniture in terms of human values, social conditions, technology and design criteria. | | | Develops systematic design approach and space planning through furniture as elements of design. |
| | **Entrepreneurship** | | | | Develops systematic design approach and space planning through furniture as elements of design |
| | **Skill Development** | | | | Develops systematic |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | design approach and space planning through furniture as elements of design. |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment** | **Professional Ethics** | Various stylistic transformations, Furniture designers and movements, Analysis of furniture in terms of human values, social conditions, technology and design criteria. | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| **APID235A** | **DISPLAY ART II** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 2.0** | | - | - | - | 4 | 2 |
| **Pre-requisites/Exposure** | | Observation & explorative thinking | | | | |
| **Co-requisites** | | Creativity | | | | |

**Course Objectives**

1. To understand diverse display spaces and their expression.
2. To focus on material exploration.
3. To explore methods and techniques of display items
4. To understand role of lighting and various aspects of it in display.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. Understand diverse space typologies and sensory aspect related to them.

CO2. Develop handling of different materials.

CO3. Developing finer aesthetics and handling of spaces like small scale retail spaces.
CO4. Lighting and showcasing of diverse products.

**Catalog Description**

The course is about aspects of display in small scale retail spaces. The aspects that will be covered in every semester will focus on

1. Material exploration, that includes, understanding material properties, handling and tools of display.
2. Display methods, that includes, strategic placement of a display item.
3. Lighting, that includes, type of lighting, placement and its impact.
4. Overall impact- The uniqueness of display item & impact on the viewer.

**Course Content**

- Typology of space- small scale retail spaces
- Suggestive spaces- Book shops, Grocery store, Pharmacy, Cloth store, Accessory stores etc
- Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning and working on display objects and techniques.

**Reference book(s) [RB]:**

1. Francis D K Ching; Interior Design Illustrated, 4th Edition; John Wiley and Sons, USA. Time Saver Standards, Neufert.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid-term Jury | End - term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Understand diverse space typologies and sensory aspect related to them. | All except PO5 |

| | | |
|---|---|---|
| **CO2** | Develop handling of different materials. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |
| **CO3** | Develop finer aesthetics and handling of small-scale retail spaces. | **All except PO5** |
| **CO4** | To understand role of lighting and various aspects of it in display. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **3** | **3** | **3** | | **2** | **3** | **3** | **3** | **3** | **3** | **3** |
| CO2 | **3** | | **3** | **3** | | | | | **3** | **3** | **3** | |
| CO3 | **3** | **3** | **3** | **3** | | **3** | **2** | **3** | **3** | **3** | **2** | **3** |
| CO4 | **3** | | **3** | **3** | | | | | **3** | **3** | | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | Typology of space- small scale retail spaces | Suggestive spaces- Book shops, Grocery store, Pharmacy, Cloth store, Accessory stores etc | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay-terracotta etc | |
| | **National** | | | | |
| | **Global** | | | | |
| | **Employability** | Typology of space- small | Suggestive spaces- Book | Suggestive materials- | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | | scale retail spaces | shops, Grocery store, Pharmacy, Cloth store, Accessory stores etc | Bamboo, Wood, Glass, Metal, Plaster of paris, Clay-terracotta etc | |
| | **Entrepreneurship** | Typology of space- small scale retail spaces | Suggestive spaces- Book shops, Grocery store, Pharmacy, Cloth store, Accessory stores etc | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay-terracotta etc | |
| | **Skill Development** | Typology of space- small scale retail spaces | Suggestive spaces- Book shops, Grocery store, Pharmacy, Cloth store, Accessory stores etc | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay-terracotta etc | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Sustainable Development and Global Citizenship (SDG 4.7)<br>Safe and Inclusive Learning Environments (SDG 4.a) - Learning about materials and constructing sustainable environment with them |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) - Base of Architetcure |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes - Case study |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills - Learning keys for designing |

| APID227B | COMPUTER APPLICATION-I | L | S | T | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 0 | 4 | 2 |
| Pre-requisites/Exposure | | | | | | |
| Co-requisites | | | | | | |

**Course Objectives**

1. To familiarize with software associated with making drawing, formatting, and presentation.
2. Development of effective presentation techniques.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1.Learn drafting software AutoCAD
CO2.Integrate software learning tool with the design studio project like MS office package
CO3.Understand use and application software's for making presentation drawings

**Catalog Description**

Empowering students to use computers as 2D drafting and to familiarize realistic rendering and presentation techniques

**Course Content**

**Unit-I. Word processing**
Introduction to Applications of MS Office in presentation: Microsoft Word, Microsoft Power Point and Microsoft Excel.

**Unit-II. Introduction to AutoCAD as 2D drafting tool**
Digital drawings tools, drawing lines and shapes, modifying lines and shapes, drawing with accuracy and speed. Organizing plans, sections and elevations, drawing and printing to scale, text styles and sizes, hatches and dashed lines. Stencils and blocks, advanced editing tools, and dimensioning drawings.

**Reference Books/Materials**

1. Gindis, E. (2014). Up and Running with AutoCAD 2015: 2D & 3D Drawing and Modelling. Oxford : Elsevier.
2. Seidler, D. R. (2007). Digital Drawing for Designers: A Visual Guide to AutoCAD 2012. London Fairchild Publications.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme**

| Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Learn drafting software AutoCAD | **PO1** |
| **CO2** | Integrate software learning tool with the design studio project like Adobe package and MS office package | **PO3, PO6** |
| **CO3** | Understand use and application software's for making presentation drawings | **PO7,PSO1, PSO3** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | | **2** | | | | **1** | | | | |
| CO2 | **3** | | | **2** | | | | **2** | | | | |
| CO3 | **2** | | | **2** | | | | **3** | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the** | **Employability** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and | |

| | | | | | |
|---|---|---|---|---|---|
| **Employability/ Entrepreneurship/ Skill Development** | | | | Rendering | |
| | **Entrepreneurship** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and Rendering | |
| | **Skill Development** | Introduction to Applications of MS Office in presentation | Introduction to AutoCAD as 2D drafting tool | Introduction to 3D Modelling and Rendering | |
| **Relevance to the Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | t | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment& Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4)<br>Computer Aided Drafting and rendering skills to make architectural drawings digitally |
| **NEP** | | Optimal Learning Environments and Support for Students (12.1-12.10)- |
| **POE** | | Technical Skills that match Industry Needs<br>(Knowledge of softwares) |
| **4th IR** | | Skill Embedded Courses Development(Knowledge of softwares) |

| APID229B | BUILDING SERVICES-I (DRAINAGE, PLUMBING) | L | S | T | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | 0 | 0 | 0 | 2 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To understand the basic principles of water supply and sanitation
2. To make them enable to draw the piping system (pipe above ground and underground) for different types of buildings
3. To familiarize the student with plumbing bye laws as per BIS

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1.Acquire knowledge of services in buildings
CO2.Draft layout of simple drainage systems for small buildings
CO3.Familiarize with plumbing bye laws as per ISI
CO4.Understand Planning of bathrooms and lavatory blocks in domestic & multi-storied buildings

**Catalog Description**

To equip the students of architecture about the building services related to water supply and building sanitation, so as to enable them to comprehend the subject thoroughly and integrate the learning into architectural design.

**Course Content**

**Unit-I. Water Supply** **8Hrs**

Introduction, types of sources, yield & spacing of wells, intakes, pumping and transportation of water. Treatment of water, qualities of potable water. Domestic water distribution system, reservoirs, supply system layouts, Pipe appurtenances, pumps, pumping plants, overhead tanks, water demand calculations. Building service connection, Ferrules, Water meters. Layout of domestic water piping systems, joints, fittings and valves. Cold & hot water lines in buildings, Water supply to high rise buildings: problems encountered & systems adopted.

**Unit-II. Building Sanitation** **8Hrs**

Principles of sanitation, collection and disposal of various kinds of refuse from buildings. Methods of carrying refuse, systems of refuse disposal, their principles. Plumbing definitions

and related terms, plumbing systems (one pipe, two pipe etc), House drainage system, Drainage of sub-soil water. Inspection chambers, Manholes, Sub-drains, culverts, ditches and gutters, drop inlets and catch basins, roads and pavements, storm overflow/regulators.

**Unit-III. Plumbing and Sanitary Appliances**

Basic principles of Plumbing, need, scope, terminology. Specifications and installation of sanitary fittings like wash basins, water closets, urinals, bidets, sinks, etc in buildings. Uses of gate valve, float valve, flap valve, ball valve, flush valve, etc, different types of taps, faucets, stop cocks, bib cocks, 'P', 'Q', 'S', floor/bottle traps used in buildings.

**8Hrs**

**Unit-IV. Design of Plumbing Systems**

Design considerations on drainage scheme. Planning of bathrooms, lavatory blocks and kitchen in domestic and multi-storeyed buildings. Preparation of plumbing drawings, symbols commonly used in these drawings.

**Unit-V. Sewerage** **8Hrs**

Indian standards and byelaws for sanitary conveyance. Disposal of sewage from isolated building, Gradients used in laying of drains and sewers for various sizes. Septic tank details & capacity calculation. Sewage treatment. Use of pumps in sanitation, biogas, soil disposal without water carriage, rural sanitation.

**Text Books:**

This course does not have a text book.

**Reference Books/Materials**


1. Birdie, B. S. (1996). Water supply and Sanitary Engineering. Dhanpat Rai and Sons.
2. & National Building Code of India. (2005)
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**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Acquire knowledge of services in buildings | **PO7** |
| **CO2** | Draft layout of simple drainage systems for small buildings | **PSO1, PSO2,PSO3** |
| **CO3** | Familiarize with plumbing bye laws as per ISI | **PO3, PO6, PSO5** |
| **CO4** | Understand Planning of bathrooms and lavatory blocks in domestic & multi-storied buildings | **PO1, PO2** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **1** | **-** | **-** | **-** |
| CO2 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **-** | **-** | **1** | **-** |
| CO3 | **3** | **2** | **2** | **2** | **3** | **-** | **3** | **-** | **1** | **2** | **1** | **-** |
| CO4 | **3** | **2** | **3** | **3** | **3** | **-** | **3** | **3** | **1** | **2** | **1** | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the** | **Professional Ethics** | | Water supply design of a | | |

| | | | | | |
|---|---|---|---|---|---|
| **Professional Ethics, Gender, Human Values, Environment & Sustainability** | | | residence: Connection with water mains, design of Underground & Overhead water tanks | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | Innovative and cost-effective sanitation concepts e.g., Eco SAN | Water Harvesting & Groundwater Recharge Zero discharge concepts Waste water recycling methods |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Quality Education | | | |
| **NEP** | | Optimal Learning Environments and Support for Students (12.1-12.10)- | | | |
| **POE/4th IR** | | | | | |

## MOOC COURSE

### 1. Role of Craft and Technology in Interior - Architecture

**By Prof. Smriti Saraswat | IIT Roorkee**

**LINK**- https://onlinecourses.nptel.ac.in/noc22_ar09/preview

**ABOUT THE COURSE**:

This course is very crucial as it focuses on a trans-disciplinary research, emphasizing on the role of Craft & Technology in the discipline of Interior-Architecture. In the current decade which focuses on trans-disciplinarity and innovation, a course like this shall be very useful for a wide audience hailing from different disciplines such as art; craft; architecture; design; and, creative industries. Moreover, such a course is very much in line with the MHRD initiatives like SANDHI and Design Hub, where the focus is on amalgamation of Art, Science and Technology. It has multifold objectives: a) To understand the definition and scope of Interior-Architecture and Craft & Technology. b) To document and disseminate the role of Craft & Technology in Interior-Architecture through state-of-the-art literature; best studies and case studies. c) To create awareness and exposure for skill based knowledge systems. d) To establish link between tradition and continuity. e) To develop new paradigms of pedagogy and practice in the field of Interior-Architecture and Craft & Technology

**INTENDED AUDIENCE** : Designers; Architects; Artists; Craft Persons; Entrepreneurs working in the core and peripheral subjects

**INDUSTRY SUPPORT** : All the relevant Industries related to Interior- Architecture; Design; Art; Craft and the Creative Industries (Specific Examples Asian Paints; District Industries Centres; Alaya Design Studio)

**Summary**

Course Status : Upcoming
Course Type : Core
Duration : 8 weeks
Start Date : 25 Jul 2022
End Date : 16 Sep 2022
Exam Date : 25 Sep 2022 IST
Enrollment Ends : 01 Aug 2022

**Category :**

Architecture and Planning
Credit Points : 2
Level : Undergraduate/Postgraduate
FacebookTwitterEmailLinkedInWhatsAppShare

**Course layout**

Week 1 : Interior- Architecture: Definition and Understanding, Craft: Definition and Understanding (Varied Perspectives on Art and Craft),Interior- Architecture and Craft & Technology: Establishing Inter- Relationships and Exploring Applications. Discourse
Week 2 : Interior- Architecture: Documenting Knowledge and Skills, Traditional Knowledge Systems and the Ingenious skills of the communities, Interior-Architecture: Documenting Materials; Tools and Techniques, Traditional Knowledge Systems and the Indigenous materials; tools and techniques, Discourse
Week 3: Creative and Cultural Industries:Understanding Definition; Significance and Scope, Building Crafts: Definitions; perspectives and frameworks, Building Crafts: Craft and Technology and its Role in creating/enhancing Interior- Architecture, Discourse
Week 4 : Best Studies related to the Craft Sector, Case Studies From Gujarat, Rajasthan, Uttarakhand, Miscellaneous Case Studies
Week 5 : Craft and Technology in Interior Architecture: Decoding Systems and Transformation through Time,Discourse

Week 6 : Overview of the Craft Sector Today, Issues and Challenges, Policies and Reforms, Gaps, Summary & Discourse
Week 7 : Continuity and Revival: Research and Documentation Perspective, Education and Training Perspective, Innovation and Development Perspective, Resource Building and Dissemination Perspective, Summary & Discourse
Week 8 : Interventions - Process Based; Product/Design Based; Technology Based; Marketing/Management Based; and, Spatial, Summary & Discourse

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**Instructor bio**

**Profile photo**

**Prof. Smriti Saraswat**

IIT RoorkeeProf. Smrti Saraswat is trained as an Architect & Interior-Designer. She has been awarded with a Letter of Merit from the CEPT University, Ahmedabad. She is currently an Assistant Professor in the Department of Architecture and Planning at IIT Roorkee (Uttarakhand, India). She is passionate about Interior-Architecture; Design Research and Writing; Craft and Technology; Traditional Building Practices; Indigenous Communities; Skill Development; Creative and Cultural Industries; Cultural and Architectural Heritage; Narratives; anthropological quests and ethnographic approaches in architecture; and Pedagogy.She has worked on prestigious projects focusing on conservation while working with Development and Research Organisation on Nature, Arts and Heritage (DRONAH), Gurgaon; projects and events discussing craft & technology, design innovation and interior-architecture during her tenure as a senior researcher at Design Innovation and Craft Resource Centre (DICRC), CEPT University, Ahmedabad, with a focus on conducting workshops, prototyping, developing monographs based on these, and creating material inventories; projects and events focusing on art-craft-interior-architecture traditions of Uttarakhand with IIT Roorkee and Ministry of Culture; and, a joint project on Model Village Development for the Juang Tribe of Odisha, funded by HUDCO. Recently, she has got a Research Grant A New Passage to INDIA, sponsored by DAAD, Germany, in collaboration with Prof. Axel Sowa, RWTH University, Aachen. Her Ph.D. (pursuing at IIT Roorkee) is an attempt to explore frameworks for interventions in Space-Making Crafts (more popularly known as building crafts or architectural crafts) of Uttarakhand (India). She has received several grants and scholarships; organized varied national and international workshops; training

programmes; short term courses, including GIAN and NPTEL; trans-disciplinary academic workshops at IIT Roorkee that focus on materials; craft and technology; interior-architecture; and, design innovations.; set up collaborations with National and International schools and organisations; and authored several publications. She loves to travel; document; read; create photo essays; and tell stories.

Course certificate

The course is free to enroll and learn from. But if you want a certificate, you have to register and write the proctored exam conducted by us in person at any of the designated exam centres.

The exam is optional for a fee of Rs 1000/- (Rupees one thousand only).

Date and Time of Exams: 25 September 2022 Morning session 9am to 12 noon; Afternoon Session 2pm to 5pm.

Registration url: Announcements will be made when the registration form is open for registrations.

The online registration form has to be filled and the certification exam fee needs to be paid.

More details will be made available when the exam registration form is published. If there are any changes, it will be mentioned then.

Please check the form for more details on the cities where the exams will be held, the conditions you agree to when you fill the form etc.

**CRITERIA TO GET A CERTIFICATE**

Average assignment score = 25% of average of best 6 assignments out of the total 8 assignments given in the course.

Exam score = 75% of the proctored certification exam score out of 100

Final score = Average assignment score + Exam score

YOU WILL BE ELIGIBLE FOR A CERTIFICATE ONLY IF AVERAGE ASSIGNMENT SCORE >=10/25 AND EXAM SCORE >= 30/75. If one of the 2 criteria is not met, you will not get the certificate even if the Final score >= 40/100.

Certificate will have your name, photograph and the score in the final exam with the breakup.It will have the logos of NPTEL and IIT Roorkee.It will be e-verifiable at nptel.ac.in/noc.

Only the e-certificate will be made available. Hard copies will not be dispatched.

Once again, thanks for your interest in our online courses and certification. Happy learning.

- NPTEL team

### 2. The Joy of Computing using Python

By Prof. Sudarshan Iyengar, Prof. Yayati Gupta | IIT Ropar

**ABOUT THE COURSE :**

A fun filled whirlwind tour of 30 hrs, covering everything you need to know to fall in love with the most sought after skill of the 21st century. The course brings programming to your desk with anecdotes, analogies and illustrious examples. Turning abstractions to insights and engineering to art, the course focuses primarily to inspire the learner's mind to think logically and arrive at a solution programmatically. As part of the course, you will be learning how to practice and culture the art of programming with Python as a language. At the end of the course, we introduce some of the current advances in computing to motivate the enthusiastic learner to pursue further directions.

**INTENDED AUDIENCE** : Any interested audience

**PREREQUISITES** : 10th standard/high school

**INDUSTRY SUPPORT** : Every software company is aware of the potential of a first course in computer science. Especially of a first course in computing, done right..

1 Course layout

- Motivation for Computing
- Welcome to Programming!!
- Variables and Expressions : Design your own calculator
- Loops and Conditionals : Hopscotch once again
- Lists, Tuples and Conditionals : Lets go on a trip
- Abstraction Everywhere : Apps in your phone
- Counting Candies : Crowd to the rescue
- Birthday Paradox : Find your twin
- Google Translate : Speak in any Language
- Currency Converter : Count your foreign trip expenses
- Monte Hall : 3 doors and a twist
- Sorting : Arrange the books
- Searching : Find in seconds
- Substitution Cipher : What's the secret !!
- Sentiment Analysis : Analyse your Facebook data
- 20 questions game : I can read your mind
- Permutations : Jumbled Words
- Spot the similarities : Dobble game
- Count the words : Hundreds, Thousands or Millions.
- Rock, Paper and Scissor : Cheating not allowed !!
- Lie detector : No lies, only TRUTH
- Calculation of the Area : Don't measure.
- Six degrees of separation : Meet your favourites
- Image Processing : Fun with images
- Tic tac toe : Let's play
- Snakes and Ladders : Down the memory lane.
- Recursion : Tower of Hanoi
- Page Rank : How Google Works !!

**Instructor bio**: Prof. Sudarshan Iyengar, IIT Ropar

Prof. Sudarshan Iyengar, Associate Professor at the CSE at IIT Ropar has a Ph.D. from the Indian Institute of Science (IISc). An exemplary teacher who has delivered over 350 popular science talks to students of high school and advanced graduate programmes. Dr. Sudarshan has offered more than 100 hours of online lectures with novel teaching methodologies that have reached lakhs of Students. His research interests include Data Sciences, Social Computing, Social Networks, Collective Intelligence, Crowdsourced Technologies and Secure Computation

Course certificate

The course is free to enroll and learn from. But if you want a certificate, you have to register and write the proctored exam conducted by us in person at any of the designated exam centres.

The exam is optional for a fee of Rs 1000/- (Rupees one thousand only).

Date and Time of Exams: **30 October 2022** Morning session 9am to 12 noon; Afternoon Session 2pm to 5pm.

Registration url: Announcements will be made when the registration form is open for registrations.

The online registration form has to be filled and the certification exam fee needs to be paid.

More details will be made available when the exam registration form is published. If there are

any changes, it will be mentioned then.
Please check the form for more details on the cities where the exams will be held, the conditions you agree to when you fill the form etc.

**CRITERIA TO GET A CERTIFICATE**

This course will have an unproctored programming exam also apart from the Proctored exam whose, please check announcement section for date and time . The programming exam will have a weightage of 25% towards the Final score.

Final score = Assignment score + Unproctored programming exam score + Proctored Exam score
Assignment score = 25% of average of best 8 assignments out of the total 12 assignments given in the course.

- **( All assignments in a particular week will be counted towards final scoring - quizzes and programming assignments).**
- Unproctored programming exam score = 25% of the average scores obtained as part of Unproctored programming exam - out of 100
- Proctored Exam score =50% of the proctored certification exam score out of 100

**YOU WILL BE ELIGIBLE FOR A CERTIFICATE ONLY IF ASSIGNMENT SCORE >=10/25 AND UNPROCTORED PROGRAMMING EXAM SCORE >=10/25 AND PROCTORED EXAM SCORE >= 20/50.**

**If any one of the 3 criteria is not met, you will not be eligible for the certificate even if the Final score >= 40/100.**

Certificate will have your name, photograph and the score in the final exam with the breakup.It will have the logos of NPTEL and IIT Madras .It will be e-verifiable at nptel.ac.in/noc.
Only the e-certificate will be made available. Hard copies will not be dispatched.
Summary
Course Status : Ongoing
Course Type : Elective
Duration : 12 weeks
Start Date : 25 Jul 2022
End Date : 14 Oct 2022
Exam Date : 30 Oct 2022 IST
Enrollment Ends : 08 Aug 2022
Category :
Computer Science and Engineering
Credit Points : 3
Level : Undergraduate/Postgraduate

## SEMESTER IV

| APID218B | INTERIOR DESIGN III | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 8 | - | 8 |
| Pre-requisites/Exposure | Basic knowledge of Interior design | | | | | |
| Co-requisites | -- | | | | | |

**Course Objectives**

1. The objective of the course is to develop a thorough understanding about conceptualization and visualization.
2. Use of standards, functions of spaces and application of knowledge gained from other subjects, in design.
3. To use various software to make interiors work out properly.

**Course Outcomes**

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

CO1. Induce students to experiment with built and open spaces, such that the design proposals address the various issues.
CO2. Understand physical setting sensibly and design of living units of various geographical locations and culture.
CO3. Learn perspective by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment.
CO4. Develop creative conceptual visualization, hand skill building and the process of design.
CO5. Learn use of standards, functions of spaces and application of knowledge.

**Catalog Description**

This course is intended to provide skills for designing medium scale interior spaces or products etc.

**Course Content**

The students will develop creative conceptual visualization, hand skill building, and the process of design.
The primary focus should be on Space planning process (block diagram, concept statement), Furniture, Historic style, Structural integration, Material selection, Color, Rendering, Design Process/methodology, Creativity /originality, Documenting space (sketch and photo documentation) Anthropometry and ergonomics, Graphic design (page layout and

composition) Concepts sketching, Application of design principles and elements, Portfolio development

The list of suggested topics to be covered as design problems: Design of living units of various geographical locations and culture by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment, Applications of art / craft at public level spaces- lounge (hotel), restaurant of specific ethnic characteristics.

**Text Books:**

1. Ching, Francis D. K., "Architecture: Form, Space, and Order", Wiley and Sons

**Reference Books:**

1. Wallschlaeger, C and Snyder, S.B., "Basic Visual Concepts and Principles for Artists, Architects and Designers", McGraw Hill.
2. Laseau, P, "Graphic Thinking For Architects and Designers", John Wiley and Sons

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Induce students to experiment with built and open spaces, such that the design proposals address the various issues. | PO1 |
| CO2 | Understand physical setting sensibly and design of living units of various geographical locations and culture. | PO2 |
| CO3 | Learn perspective by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment. | PO4 |
| CO4 | Develop creative conceptual visualization, hand skill building and the process of design. | PO5, PO6 |
| CO5 | Learn use of standards, functions of spaces and application of knowledge. | PO1 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | **3** | | | | |
| CO2 | | | **2** | | | | | **3** | | | | |
| CO3 | | | **3** | | | **2** | | **3** | | | | |
| CO4 | | **3** | | | | | **2** | | | | | |
| CO5 | **3** | | | | | | | | **2** | **3** | | |
| CO6 | **2** | | | | | | | | **3** | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | experiment with built and open spaces, such that the design proposals address the various issues. | Design of living units of various geographical locations and culture by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment, | | Applications of art / craft at public level spaces- lounge (hotel), restaurant of specific ethnic characteristics. |
| | **Entrepreneurship** | experiment with built and open spaces, such that the design proposals address the various issues | Design of living units of various geographical locations and culture by involving historical periods, styles and use of craft in its | | Applications of art / craft at public level spaces- lounge (hotel), restaurant of specific ethnic characteristics. |

| | | | | | |
|---|---|---|---|---|---|
| | | | inherent quality and form – craft and living environment, | | |
| | **Skill Development** | experiment with built and open spaces, such that the design proposals address the various issues | Design of living units of various geographical locations and culture by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment, | | Applications of art / craft at public level spaces- lounge (hotel), restaurant of specific ethnic characteristics. |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | experiment with built and open spaces, such that the design proposals address the various issues | Design of living units of various geographical locations and culture by involving historical periods, styles and use of craft in its inherent quality and form – craft and living environment, | | Applications of art / craft at public level spaces- lounge (hotel), restaurant of specific ethnic characteristics. |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | . | | | |
| **SDG** | | Quality Sustainable Development and Global Citizenship (SDG 4.7) | | | |

| | | |
|---|---|---|
| | | (Inculcate responsible design approaches that are sustainable.Appreciation of the design process involved in resolving architectural design problems of Institutional nature with vernacular design approach.)<br>Make cities and human settlements inclusive, safe,resilient and sustainable (SDG 11)- Integration in Design solutions |
| **NEP** | | Promoting High-quality research (18.1-18.9)- Background study and research of the Design problem through case studies and Literature studies. |
| **POE** | | Team Work- Working in groups of 3-4 for data collection and its presentation |
| **4TH IR** | | Hands-on Experience (Design propsal developed by the students with help of faculty inputs) |

| **APID238A** | **MATERIALS & CONSTRUCTION -III** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 3 | 0 | 3 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To introduce and familiarize the students with the usage of various metal/gypsum board partitions and false ceilings construction works.
2. To acquaint the students to usage of building materials for Floorings
3. To familiarize the students with construction techniques for use of the above materials in building works
4. To familiarize the student with the basic building construction practices on site/yard

**Course Outcomes**

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

CO1. Understand materials and their details for surface, floor finishes
CO2. Able to make detailed construction drawing of Gypsum False Ceiling, Partitions and Panelling, Partitions/ paneling, finishes and cladding

**Catalog Description**

To impart knowledge on various types of floors and flooring material, partitions and paneling and various surface finishes.

**Course Content**

**Unit-I. Partitions and Paneling, Cladding**

Introduction, requirement of partition, types of partitions (viz. Brick, clay, concrete, glass, timber, gypsum etc.) Various types of paneling (glazed, wooden etc.), details for paneling, sound proof and lightweight partitions, ***Dry wall cladding and Aluminum Composite Panel Cladding (Sandwich Panel)***

**Unit-II. Surface Finishes**

Smooth finishes, textured finishes, ribbed, hitched, exposed aggregate finish, weathering of finishes, rough cast, dry dash, stucco, gypsum, and pop applications, protective and decorative coatings, cladding. Defects in plastering, type of plastering, method of plastering. Varnishes, polish and Paints-distempers, emulsions, cement base paints, oil base. Constituents of oil paints, characteristics of paints, types of paints and process of painting on different surfaces. Types of varnish, methods of applying varnish, French polish, melamine finish, lacquer finish their applications in building activities. Laminates and veneers, type of laminates, laminated wood, veneer from different types of timber, and their characteristics.

**Unit-III. Floor& Floor Finishes** Brick, Cement Concrete, Stone, Terrazzo, Chequered Tile, Ceramic Tile, Vitrified Tiles, Wooden.

**Unit-IV. Gypsum**

Introduction - Gypsum Board, Suspended Ceiling (Board & Tiles), Gypsum Plaster, Components and Accessories. Jointing and Finishing.

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning.

**Reference Books/Materials**

1. Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi : East-West Press.
2. Bindra, S.P. and Arora, S.P. (2000). Building Construction: Planning Techniques and Methods of Construction, 19th Ed. New Delhi : Dhanpat Rai Publications.
3. Ching, F. D. K. (2000). Building Construction Illustrated. 3rd Ed. New York : Wiley.
4. Edward, A. and Piano, J. (2009). Fundamentals of Building Construction: Materials and Methods. 5th Ed. Hoboken : John Wiley & Sons.

5. Foster, J. S. (1963). Mitchell Building Construction: Elementary and Advanced. 17 Th Ed. London : B.T. Batsford Ltd.
6. Hailey and Hancork, D. W. (1979). Brick Work and Associated Studies Vol.II. London : MacMillan.
7. McKay, W. B. (2005). Building Construction Metric Vol. 1–IV, 4th Ed. Mumbai :Orient Longman.
8. Moxley, R. (1961). Mitchell's Elementary Building Construction. London : B. T. Batsford.
9. Rangwala, S. C. (1963). Building Construction: Materials and types of Construction, 3rd Ed. New York : John Wiley and Sons.
10. Rangwala, S. (2004). Building Construction. 22nd Ed. Anand.: Charotar Pub. House.
11. Sushil-Kumar, T. B. (2003). Building Construction, 19 Th Ed. Delhi : Standard Publishers.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**

**Examination Scheme:**

| **Components** | **Mid Term Jury** | **End Term Internal Jury** | **End Term Studio Exam** | **End Term External Jury** |
|---|---|---|---|---|
| **Weightage (%)** | **20** | **30** | **20** | **30** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand materials and their details for surface, floor finishes | **PO1, PO2** |
| **CO2** | Able to make detailed construction drawing of Gypsum False Ceiling, Partitions and Panelling | **PO3, PO7, PSO2** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | **3** |
| CO2 | **3** | | | | | | | | | | | |
| CO3 | | | **3** | | | | | | | | | **3** |
| CO4 | | | | | | | | | | **3** | | |
| CO5 | | | **3** | | | | | | | | | **3** |
| CO6 | **3** | | | | | | | | | | | **3** |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneur ship/ Skill Development** | **Employability** | Various types of paneling (glazed, wooden etc.), details for paneling, sound proof and lightweight partitions | Smooth finishes, textured finishes, ribbed, hitched, exposed aggregate finish, weathering of finishes, rough cast, dry dash, stucco, gypsum, and pop applications, protective and decorative coatings, cladding. | Brick, Cement Concrete, Stone, Terrazzo, Chequered Tile, Ceramic Tile, Vitrified Tiles, Wooden. | |
| | **Entrepreneur ship** | Various types of paneling (glazed, wooden etc.), details for paneling, sound proof and lightweight partitions | Smooth finishes, textured finishes, ribbed, hitched, exposed aggregate finish, weathering of finishes, rough cast, dry dash, stucco, gypsum, and pop applications, protective and decorative | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | coatings, cladding. | | |
| | **Skill Development** | Various types of paneling (glazed, wooden etc.), details for paneling, sound proof and lightweight partitions | Smooth finishes, textured finishes, ribbed, hitched, exposed aggregate finish, weathering of finishes, rough cast, dry dash, stucco, gypsum, and pop applications, protective and decorative coatings, cladding. | | Gypsum Plaster, Components and Accessories. Jointing and Finishing |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | market surveys for building materials and study of latest building materials in the building construction industry. | | case studies of architectural and interior projects where the above-mentioned materials have been innovatively used. |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation (SDG 9)- Awereness and sensitization of innovations in construction technologies covered in Unit I-IV |
| **NEP** | | Adult Education and Lifelong Learning (21.1-21.10)<br>Professional Education (17.1-17.5)<br>Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |
| **POE** | | Technical Skills that match Industry Needs<br>Focus on Employability Skills (Local/Regional and Global)<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |
| **4th IR** | | Skill Development<br>Hands-on Experience<br>(Ability to design, choose and impliment relevant construction details and materials for projetcs and proposals/ may also be implemented in live projects) |

| APID234A | **THEORY OF INTERIOR DESIGN II** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 2.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Understanding of Historical Context | | | | | |
| **Co-requisites** | Integration of traditional art forms and crafts | | | | | |

**Course Objectives**

1. To familiarize the students about basic terminologies related to Craft, Art and Interior design of various regions of India.
2. To familiarize the students with craft and traditional art forms, influence of climate, social and cultural aspects of a place as per the requirement in context of various regions of India.
3. To make students realize the overall impact of above on the different region of India.
4. In contemporary terms the students develop an overall understanding of these traditional art forms and their use, interpretation in today's world.

**Course Outcomes**

On successful completion of this course, the students have capability to:

CO1. Understand basic terminologies related to Art, Craft and Interior design. This will help to enhance knowledge of the field of Interior Design.
CO2. Establish the link between climate, society, tradition and the development of Art and Craft as an outcome of these conditions.
CO3. Understand impact of above on regions of India
CO4. Overall understanding of traditional art form and their interpretation in today's world.

**Catalog Description**

This course familiarizes the students about traditional art forms, influence of climate, social and cultural aspects and innovations in interior design as per the need. The course also makes the students understand the origin, need of traditional art as a consequence of living conditions and culture of a place. This course also familiarizes the students about history of heritage interiors in India.

**Course Content**

The lectures shall be focused on

- Purpose and relevance of art with respect to climate and local traditions.
- Time line of development of art from pre historic times to present times with focus on various forms and materials.
- Famous and influential Artists, Architects and designers in the field of Interior Design.
- Elements of style, interior environment, furniture in various states of India- Jammu and Kashmir, Southern India, Gujarat, Rajasthan, Himachal Pradesh, Madhya Pradesh, states of North eastern India, Maharashtra, Uttar Pradesh, Orissa etc.

**Unit I** **8Hrs**

- Understanding basic terminologies related to Art, Craft and Interior design with respect to Heritage buildings of various regions of India in brief.
- Exploring Art Forms in detail of various regions of India.

**Unit II** **8Hrs**

- Understanding Elements of style, interior environment, furniture in Northern and Southern parts of India (at least 3 cities of each region)

**Unit III** **8Hrs**

- Understanding Elements of style, interior environment, furniture in North eastern part of India (at least 3 cities of region)

**Unit IV** **8Hrs**

- Understanding Elements of style, interior environment, furniture in Western and Central parts of India (at least 3 cities of each region)

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand basic terminologies related to Art, Craft and Interior design. This will help to develop vocabulary of the field of Interior Design | **PO1, PO4, PO7, PSO2, PSO5** |
| **CO2** | Establish the link between climate, society and the development of Art and Craft as an outcome of these conditions. | **PO1, PO4, PO7, PSO2, PSO5** |
| **CO3** | Understand impact of above on regions of India | **PO1, PO4, PO7, PSO3, PSO5** |
| **CO4** | Overall understanding of traditional art form and their interpretation in today's world. | **PO1, PO4, PO7, PSO3, PSO5** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | **3** | | | **3** | | **3** | | | **3** |
| CO2 | **2** | | | **3** | | | **3** | | **2** | | | **3** |
| CO3 | **3** | | | **3** | | | **3** | | | **3** | | **3** |
| CO4 | **2** | | | **3** | | | **3** | | | **3** | | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | Understanding Elements of style, interior environment, furniture in Northern and Southern parts of India (at least 3 cities of each region) | Understanding Elements of style, interior environment, furniture in North eastern part of India (at least 3 cities of region) | |
| | **National** | Understanding basic terminologies related to Art, Craft and Interior design with respect to Heritage buildings of various regions of India in brief. Exploring Art Forms in detail of various regions of India. | | | Understanding Elements of style, interior environment, furniture in Western and Central parts of India (at least 3 cities of each region) |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Professional Education (17.1-17.5)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) | | | |
| **POE/** | | Focus on Employability Skills (Local/Regional and Global)<br>Application of technical knowledge. | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| **APID232A** | **RENAISSANCE TO INDUSTRIAL REVOLUTION** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | | Knowledge of European and Indian history. | | | | |
| **Co-requisites** | | -- | | | | |

**Course Objectives**

1. To generate an understanding about the development of civilizations and its impact on contemporary architecture.
2. Understanding of the periods in terms of their context of location, climate as well as the geographical, cultural, historical, economic and political influences of the time.
3. To understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present.

**Course Outcomes**

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

CO1. Understand architecture of the period as a solution to the need or demands of the society.
CO2. Understanding the development of civilizations and its impact on contemporary architecture.
CO3. Generate an understanding about the development and evolution of architecture as a culmination of various factors like location, climate, socio-cultural, historical, economic and political influences.

**Catalog Description**

History of Architecture intends to form a connection between past and present in the context of architecture. The student starts to understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present.
The architectural study is to be linked with the social developments of civilizations, geographical and geological factors, materials and structures etc. The History of Architecture is studied over 5 semesters and is divided chronologically and regionally to understand and focus on a specific aspect in a particular semester.
The course shall include sketching and understanding of historical buildings, historical analysis, and visit to places of historical importance. The students are introduced to a chronological study of world architecture starting with development of civilizations to contemporary times. The students understand the building types and development of architectural form and character based on tangible (materials, construction techniques) and intangible factors (belief systems, needs of different religions, dynasties and influences).

**Course Content**

**Unit I:** **8Hrs**

The syllabus focuses on the architectural growth and development from the 18th & 19th century in Europe and Indian sub-continent. It includes Renaissance, Baroque, impact of Industrial Revolution in Europe and Colonial Architecture in India.
Renaissance Architecture (Classical Architecture) includes Leaning on Greek & Roman Art & Architecture, Reintroduction of anthropomorphic Classical Orders, Use of elementary geometrical forms and simple mathematical ratios, Study of palazzos & development of centralized church form through specific examples from Italy. Example: St.Peters Church, Dynamism of urban spaces and Study of important villas, churches and urban spaces in Italy.

**Unit II:** **8Hrs**

Baroque architecture includes concepts like Vitality and spatial richness with underlying systematic organization, Sensitivity to effects of texture, color, light and water (Optical illusion) and Study of important urban spaces and churches in Italy and Germany.

**Unit III:** **8Hrs**

Late 18th to early 20th century in Europe includes Industrial revolution and its architectural implications (19th century Neo Classicism, Development of Architecture in Europe-Victorian England e.g Eiffel tower, Crystal palace, Technology of Iron and Steel, Town planning trends in Europe and Influence of Europe in India.

**Unit IV:** **8Hrs**

Within this context, study of Colonial Architecture in India (late 18th to early 20th century) is studied with emphasis on Colonial culture reflecting in the architecture of India, buildings of Kolkata, Goa, Delhi & Mumbai. Portuguese-Goa, Dutch-Coromandel, Malabar, British-Delhi, Kolkata, Mumbai, French-Pondicherry, Early British Princely Indian Architecture, Birth of Indo Saracenic Architecture and Lutyen's Delhi.

**Text Books**

1. Cruickshank, D., Fletcher, B., Saint A., "Banister Fletcher's - A History of Architecture", Architectural Press
2. Hiraskar, G.K., "The Great Ages of World Architecture (with Introduction to Landscape Architecture)", Dhanpat Rai Publications (P) Ltd.

**Reference Books/Materials**

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Class Test 1 | Presentation 1 | Class Test 2 | Presentation 2 | Attendance | End Term Exam |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Understand architecture of the period as a solution to the need or demands of the society. | PO1, PO3 |
| CO2 | Understanding of the periods in terms of their context of location, climate as well as the geographical, cultural, historical, economic and political influences of the time. | PO3 |
| CO3 | To understand the evolution of forms, character, use of | PO4, PO7 |

| | | |
|---|---|---|
| | techniques and materials and their impact as a continuous process from the past to the present. | |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **2** | **3** | **2** | **2** | **3** | **2** | **2** | **1** | **2** | **1** | **2** |
| CO2 | **2** | **3** | **2** | **2** | **1** | **3** | **2** | **3** | **2** | **3** | **2** | **3** |
| CO3 | **2** | **1** | **3** | **3** | **2** | **3** | **3** | **2** | **3** | **3** | **3** | **3** |
| CO4 | **2** | **2** | **2** | **3** | **2** | **3** | **2** | **1** | **2** | **2** | **3** | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | Renaissance Architecture | Baroque architecture | Late 18th to early 20th century in Europe includes Industrial revolution and its architectural implications | Within this context, study of Colonial Architecture in India (late 18th to early 20th century) is studied with emphasis on Colonial culture reflecting in the architecture of India, buildings of Kolkata, Goa, Delhi & Mumbai. Portuguese-Goa, Dutch-Coromandel, Malabar, British-Delhi, Kolkata, Mumbai, French-Pondicherry, Early British Princely Indian Architecture, Birth of Indo Saracenic Architecture and Lutyen's Delhi. |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Culture & Heritage (SDG 11.4)<br>Understanding of civilizations and its impact on contemporary architecture for better, inclusive and open cities | | | |
| **NEP** | | | | Promotion of Indian Languages, Arts & culture (22.1-22.15)- Reflectance upon Indian art and architecture history | |
| **POE/4th IR** | | | | | |

| **APID224A** | **FURNITURE DESIGN-II** | L | T | S | C |
|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 3 | 3 |
| **Pre-requisites/Exposure** | Basic knowledge of Furniture design | | | | |
| **Co-requisites** | -- | | | | |

**Course Objectives**

1. The objective of the course is to develop a thorough understanding about conceptualization and visualization.
2. Use of standards, functions of spaces and application of knowledge gained from other subjects, in design.
3. To use various software to design furniture properly.

**Course Outcomes**

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

CO1. Prepare selections and specifications of interior materials, finishes, and furnishings.
CO2. Use two-dimensional digital drafting and three-dimensional digital modeling skills.
CO3. Create sample models that demonstrate various construction techniques.
CO4. Compare the relationship of design history to the creation of new products for interior design.
CO5. Describe and evaluate the methods of material manipulation.
CO6.Explain the machine processes for construction of furniture and designed-objects.

**Catalog Description**

To share knowledge about various styles, systems and products available in the market.

**Course Content**

Enhances the knowledge of functional design, materials, and working parameters in designing furniture.
Develops systematic design approach and space planning through furniture as elements of design.
Study and evaluation of popular dictums such as “Form follows function”, Form and function are one”, “God is in Details” etc. Evaluation of visual design: study of Gestalt theory of design – law of enclosure, law of proximity, law of continuity etc.
Human factors, engineering and ergonomic considerations: principles of universal design and their application in furniture design.
An introduction of various manufacturing processes most frequently adopted in furniture design such as Injection Molding, investment casting, sheet metal work, die casting, blow-molding, vacuum - forming etc.
Seating Design: Different types of seating with a focus on the following Function, Aesthetics, Human factors and ergonomics. The other component to be considered is the cost of the designed furniture piece.

**Text Books**

**Reference Books/Materials**

1. Time-Saver Standards for Architectural Design Data
2. Architectural Standard Ernst Peter Neufert Architects Data
3. Time-Saver Standards for Building Types

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Prepare selections and specifications of interior materials, finishes, and furnishings. | **PO1** |
| **CO2** | Use two-dimensional digital drafting and three-dimensional digital modeling skills. | **PO2** |
| **CO3** | Create sample models that demonstrate various construction techniques. | **PO4** |
| **CO4** | Compare the relationship of design history to the creation of new products for interior design. | **PO5, PO6** |
| **CO5** | Describe and evaluate the methods of material manipulation. | **PO1** |
| **CO6** | Explain the machine processes for construction of furniture and designed-objects. | **PO2** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | |
| CO2 | | **3** | | | | | | | | | | |
| CO3 | | | | **3** | | | | | | | | |
| CO4 | | | | | **3** | **3** | | | | | | |
| CO5 | **3** | | | | | | | | | | | |
| CO6 | | **2** | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | principles of universal design and their application in furniture design. | | |
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | | | | Seating Design: Different types of seating with a focus on the following Function, Aesthetics, Human factors and ergonomics |
| | **Entrepreneurship** | | | | Seating Design: Different types of seating with a focus on the following Function, Aesthetics, Human factors and ergonomics |
| | **Skill Development** | | | | Seating Design: Different types of seating with a focus on the following Function, Aesthetics, Human factors and ergonomics |
| **Relevance to the Professional** | **Professional Ethics** | | | | Seating Design: Different types of seating with a focus on the following Function, |

| | | | | | |
|---|---|---|---|---|---|
| **Ethics, Gender, Human Values, Environment & Sustainability** | | | | | Aesthetics, Human factors and ergonomics |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | Culture & Heritage (SDG 11.4)<br>Understanding of civilizations and its impact on contemporary architecture for better, inclusive and open cities | | | |
| **NEP** | | | | Promotion of Indian Languages, Arts & culture (22.1-22.15)- Reflectance upon Indian art and architecture history | |
| **POE/4th IR** | | | | | |

| **APID228B** | **COMPUTER APPLICATION-II** | L | S | T | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 0 | 4 | 2 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To familiarize with software associated with making drawing, formatting, and presentation
2. Development of effective presentation techniques

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. Learn drafting software AutoCAD 3D

CO2. Able to create good quality interior drawings in 3D Software's

**Catalog Description**

Empowering students to use computers as 2D drafting and 3D modelling tool and to familiarize realistic rendering and presentation techniques using computers

**Course Content**

**Unit-I. Introduction to AutoCAD as 3D drafting tool**

Need of 3d dimension, the convention of AutoCAD, plan view in AutoCAD, co-ordinate system in 3d, plan view in AutoCAD, using object snap in 3d, construction of wire frame model, solid modeling using primitives, solid modeling from 2d geometry, union, subtract, region, 3d orbit, 3d array, 3d mirror, rotate, align, slice, fillet, using lights in rendering, point light, spot light, sun properties, material.

**Unit-II. Introduction to 3D Modelling and Rendering**

Modelling and basic rendering techniques, using Google Sketchup or equivalent

**Reference Books/Materials**

1. Gindis, E. (2014). Up and Running with AutoCAD 2015: 2D & 3D Drawing and Modelling. Oxford : Elsevier.
2. Seidler, D. R. (2007). Digital Drawing for Designers: A Visual Guide to AutoCAD 2012. London Fairchild Publications.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Learn drafting software AutoCAD 3D | PO1, PO7 |
| CO2 | Able to create good quality interior drawings in 3D Software's | PO3, PO6, PSO1, PSO3 |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **3** | **3** | **3** | | **3** | **2** | **2** | **2** | **3** | **3** | **3** |
| CO2 | **3** | | **3** | **3** | | | | | **3** | **3** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | | **2** | **3** | **3** | **3** | **3** | **3** | **2** |
| CO4 | **3** | | **3** | **3** | | | | | **3** | | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, Regional,global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneur ship/ Skill Development** | **Employability** | Introduction to AutoCAD as 3D drafting tool | Presentations | Advanced 3D Modelling | |
| | **Entrepreneur ship** | Introduction to AutoCAD as 3D drafting tool | Presentations | Advanced 3D Modelling | |
| | **Skill Development** | Introduction to AutoCAD as 3D drafting tool | Presentations | Advanced 3D Modelling | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4)<br>Computer Aided Drafting and rendering skills to make architectural drawings digitally |
| **NEP** | | Professional Education (17.1-17.5) |
| **POE** | | Technical Skills that match Industry Needs<br>(Knowledge of softwares) |
| **4th IR** | | Skill Embedded Courses Development(Knowledge of softwares) |

| APID230B | BUILDING SERVICES-II (ELECTRICAL & LIGHTING) | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 2 | - | - | - | 2 |
| Pre-requisites/Exposure | Understanding basics | | | | | |
| Co-requisites | Logical thinking | | | | | |

**Course Objectives**

1. To understand the electrical system in domestic and multi- storied buildings including lighting, fixtures and fittings, and cabling.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. Understand science behind Lighting.
CO2. Learn to apply prediction methods to assess the functional requirements of buildings.
CO3. Gain knowledge of optimum lighting solutions.
CO4. Able to perform basic room lighting measurements.
CO5. Learn drawing representation details for construction drawings for services

**Catalog Description**

This course imparts the basic concepts of electrical system in domestic and multistoried buildings including lighting, fixtures and fittings, and cabling.

**Course Content**

**8Hrs**

**UNIT I:**

- Introduction to engineering services for buildings
- Electrical Services: sources of electrical energy supplied to buildings
- Electricity generation, transmission and distribution.
- Instruments for measurement, metering
- Electricity Authority, Act, rules and regulations

**8Hrs**

**UNIT II:**

- Rules and regulations regarding electrification of buildings as appropriate with relevant standards
- Types of electrical wiring system, earthing, scope and requirements
- Requirements of electrical materials such as conductors, insulators
- Types and requirements of electrical cables
- Control equipment such as switch gear, safety devices to be used in electrical layouts

**UNIT III:** **8Hrs**

- Electrical lighting
- Integration of Electrical lighting with day lighting, sensors
- Instruments for measurement lux meters
- Type of lamps and luminaries, lighting density and efficiency
- Outdoor lighting, Specialized lighting like art galleries etc.

**UNIT IV:**
**8Hrs**

- Graphical symbols electrical systems
- Plug load calculation of a small building
- Electrical drawing of a small building

**Text Books**
This course does not have a text book.

**Reference Books/Materials**

1. Raina K. B. & Bhattacharya S. K. (2007) Electrical Design, Estimating and Costing, New Age International Publishers, New Delhi.
2. Dagostino, F. R. (1978) Mechanical and Electrical Systems in Construction in Architecture, Reston Publishing Company, Prentice Hill Co., Virgenia.
3. Egan, D. M. (1983) Concepts in Architectural Lighting, McGraw Hill Book Company.
4. Flynn, J. E. et. al (1992) Architectural Interior Systems: Lighting, Acoustics and Air conditioning, Van Nostrand Reinhold
5. NBO (1966) Hand book for Building Engineers, National Buildings Organisation, New Delhi.
6. Grondzik, W. T., Kwok, A.G., Stein, B, Reynolds, J. S. (2009) Mechanical and Electrical Equipment for Buildings, Wiley.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | TEST 1 | TEST 2 | Quizzes/Tutorials/ Assignment 1 | Quizzes/ Tutorials/ Assignment 2 | Attendance | Endterm examinations |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand science behind Lighting. | **PO3, PO4, PO7** |
| **CO2** | Learn to apply prediction methods to assess the functional requirements of buildings. | **PO3, PO4, PO7** |
| **CO3** | Gain knowledge of optimum lighting solutions. | **PO1, PO3, PO4, PO7** |
| **CO4** | Able to perform basic room lighting measurements. | **PO3, PO4, PO7** |
| **CO5** | Learn drawing representation details for construction drawings for services | **PO1, PO2, PO4, PO6** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | | | | | | | | | | |
| CO2 | **3** | **2** | **3** | **1** | | | | **2** | | **3** | | |
| CO3 | **2** | | | **2** | **2** | | | | **2** | **3** | | **3** |
| CO4 | **3** | | **3** | **3** | | | **3** | | **1** | **2** | | |
| CO5 | **3** | **3** | **1** | **3** | | | **3** | **3** | **3** | **2** | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | 3=strongly mapped | | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneur** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **ship/ Skill Development** | **Skill Development** | | | | |
| **Relevance to the Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | Rules and regulations regarding electrification of buildings as appropriate with relevant standards | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Professional Education (17.1-17.5)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) | | | |
| **POE/** | | Focus on Employability Skills (Local/Regional and Global)<br>Application of technical knowledge. | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| **APID236A** | **DISPLAY ART-III** | L | T | P | C |
|---|---|---|---|---|---|
| **Version 2.0** | | 0 | 0 | 4 | 2 |
| **Pre-requisites/Exposure** | Observation & explorative thinking | | | | |
| **Co-requisites** | Creativity | | | | |

**Course Objectives**

1. To understand diverse display spaces and their expression.
2. To focus on material exploration.
3. To explore methods and techniques of display items
4. To understand role of lighting and various aspects of it in display.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. understand diverse space typologies and sensory aspect related to them.
CO2. develop handling of different materials.
CO3. developing finer aesthetics and handling of spaces like large scale retail spaces.
CO4. lighting and showcasing of diverse products.

**Catalog Description**

The course is about aspects of display in large scale retail spaces. The aspects that will be covered in every semester will focus on

1. Material exploration, that includes, understanding material properties, handling and tools of display.
2. Display methods, that includes, strategic placement of a display item.
3. Lighting, that includes, type of lighting, placement and its impact.
4. Overall impact- The uniqueness of display item & impact on the viewer.

**Course Content**

1. Typology of space- large scale retail spaces
   Suggestive spaces- Car showroom, Furniture showroom, Departmental store, Branded stores( H &M , Fabindia)
   Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc

**Text Books:**
This course does not have a text book as this is a practical subject with hands on learning and working on display objects and techniques.

**Reference book(s) [RB]:**
Francis D K Ching; Interior Design Illustrated, 4th Edition; John Wiley and Sons, USA. Time Saver Standards, Neufert.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Midterm Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Understand diverse space typologies and sensory aspect related to them. | All except PO5 |
| CO2 | Develop handling of different materials. | PO1, PO3, PO4, |

| | | |
|---|---|---|
| | | **PSO2, PSO3, PSO5** |
| **CO3** | Develop finer aesthetics and handling of large-scale retail spaces. | **All except PO5** |
| **CO4** | To understand role of lighting and various aspects of it in display. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **3** | **3** | **3** | | **3** | **2** | **2** | **2** | **3** | **3** | **3** |
| CO2 | **3** | | **3** | **3** | | | | | **3** | **3** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | | **2** | **3** | **3** | **3** | **3** | **3** | **2** |
| CO4 | **3** | | **3** | **3** | | | | | **3** | | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Material exploration, that includes, understanding material properties, handling and tools of display. | | Display methods, that includes, strategic placement of a display item. | Lighting, that includes, type of lighting, placement and its impact |
| | **Entrepreneurship** | Material exploration, that includes, understanding material properties, handling and tools of display. | | Display methods, that includes, strategic placement of a display item | Lighting, that includes, type of lighting, placement and its impact |

| | | | | | |
|---|---|---|---|---|---|
| | **Skill Development** | Material exploration, that includes, understanding material properties, handling and tools of display. | | Display methods, that includes, strategic placement of a display item | Lighting, that includes, type of lighting, placement and its impact |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment** | **Professional Ethics** | | | | Lighting, that includes, type of lighting, placement and its impact |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Professional Education (17.1-17.5)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) | | | |
| **POE/** | | Focus on Employability Skills (Local/Regional and Global)<br>Application of technical knowledge. | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

## SEMESTER V

| APID317A | INTERIOR DESIGN IV | L | T | P | S | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | 0 | 0 | 0 | 10 | 10 |
| Pre-requisites/Exposure | Basic Designing | | | | | |
| Co-requisites | Logical thinking | | | | | |

**Course Objectives**

1. This course is intended to provide skills for designing interior spaces with emphasis on transformation and adaptive re-use as one of the important aspects in interior design.
2. To develop creative conceptual visualization and the process of design.
3. To understand accessibility and universal design issues.

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. Acquire skills for designing interior spaces with emphasis on transformation and adaptive re-use as one of the important aspects in interior design.
CO2. Develop creative conceptual visualization and the process of design
CO3. Develop understanding on importance of accessible and universal design.
CO4. Study of various institutional spaces in urban, semi-urban and rural contexts to understand adaptive re-use
CO5. Learn scope for rejuvenation through multi- dimensional programs like museums etc.

**Catalog Description**

The objectives of Arch. Design in the earlier semesters were concerned with 'space and form' and 'formal transformations' 'space and activity space & regional setting" etc. The continuation of this leads to understanding of architecture as an outcome of 'space and structure'. Understanding dynamics of public buildings; activities of visitors and regular users. Providing for daily/regular, monthly, annual events and activities. Relating space and individual; human scale and urban scale. Societal aspirations for aesthetics and form. Role of climate, building services, construction methods, bye-laws, codes (NBC etc.) on building and site design. Exercises on studies for grouping of activities in a public building. Design (form and space) for multi activity public facility like District Collectorate office, Degree College, Residential School (Navodaya vidyalaya), corporation office, shopping complex, Dharamshala, inns, motels, budget hotels, etc. in small and medium towns.

**Course Content**

The list of topics could be covered as design problems:

- Institutional spaces in urban, semi-urban and rural contexts with an aim to explore and understand transformation and adaptive re-use.
- Historic and abandoned sites provide scope for rejuvenation through multi- dimensional programs covering functions like museums, cultural and resource centers, libraries, convention centers, exhibitions etc. that also aim in making a social contribution.
- Recreational spaces such as auditoriums, halls, cinema houses, stage design etc. Knowledge of audio-visual communication, color and light interaction, sound control system, design of interior elements, products and furniture forms.

- The course would provide insight into various topics like –
- Introduction to building codes
- Way finding, Signage and graphics Universal Design
- Accessible design
- Design for the Disabled
- Materials, furniture and finish selections Introduction to construction detailing Ergonomics and Human Factors
- Digital representation ( 3-D modelling)
- Space planning process
- Color

**All portfolios to include two drawings showing construction system and materials, services.**

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning.

**Reference Books/Materials**

1. Time-saver Standards for Interior Design and Space Planning
2. Interior Design Reference Manual, Book by David Kent Ballast

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Acquire skills for designing interior spaces with emphasis on transformation and adaptive re-use as one of the important aspects in interior design. | **PO1** |
| **CO2** | Develop creative conceptual visualization and the process of design | **PO2, PO3** |
| **CO3** | Develop understanding on importance of accessible and universal design. | **PO4** |
| **CO4** | Study of various institutional spaces in urban, semi-urban and rural contexts to understand adaptive re-use | **PO5, PO6** |
| **CO5** | Learn scope for rejuvenation through multi- dimensional programs like museums etc. | **PO3** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **1** | | | | | | | **2** | | | |
| CO2 | | **2** | **3** | | | | | | | | | |
| CO3 | | | | | | | **2** | | | | | |
| CO4 | | | **1** | | | | **2** | | | | | |
| CO5 | | | | **2** | | | | | | | | |
| CO6 | | | **2** | | | | | | **3** | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | Institutional spaces in urban, semi-urban and rural contexts with an aim to explore and understand transformation |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | and adaptive re-use. |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | Historic and abandoned sites provide scope for rejuvenation through multi-dimensional programs covering functions like museums, cultural and resource centers, libraries, convention centers, exhibitions etc. that also aim in making a social contribution. | | Recreational spaces such as auditoriums, halls, cinema houses, stage design etc. Knowledge of audio-visual communication, color and light interaction, sound control system, design of interior elements, products and furniture forms. |
| | **Entrepreneurship** | | Historic and abandoned sites provide scope for rejuvenation through multi-dimensional programs covering functions like museums, cultural and resource centers, libraries, convention centers, exhibitions etc. that also aim in making a social contribution. | | Recreational spaces such as auditoriums, halls, cinema houses, stage design etc. Knowledge of audio-visual communication, color and light interaction, sound control system, design of interior elements, products and furniture forms. |

| | | | | | |
|---|---|---|---|---|---|
| | **Skill Development** | | | | All portfolio two drawings construction system and materials, services. |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | Understanding dynamics of public buildings; activities of visitors and regular users. Providing for daily/regular, monthly, annual events and activities. Relating space and individual; human scale and urban scale. Societal aspirations for aesthetics and form. Role of climate, building services, construction methods, bye-laws, codes (NBC etc.) on building and site design. | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Skills for Decent Work (SDG 4.4) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5)<br>Teacher Education (15.1-15.11) |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills |

| APID335A | MATERIALS & CONSTRUCTION -IV | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | - | - | 3 | - | 3 |
| **Pre-requisites/Exposure** | Detailing | | | | | |
| **Co-requisites** | Materials knowledge | | | | | |

**Course Objectives**

1. To get knowledged about materials aluminum, Upvc, glass,etc.
2. To be able to make details of aluminium and Upvc doors.
3. To be able to make details of aluminium and Upvc windows.
4. To be able to make details of Structural Glazing, Curtain wall & Spider Glazing.

**Course Outcomes**

On completion of this course, the students will

CO1. Be knowledged about materials aluminum, Upvc, glass,etc.
CO2. Be able to make details of aluminium and Upvc doors.
CO3. Be able to make details of aluminium and Upvc windows.
CO4.To be able to make details of Structural Glazing, Curtain wall & Spider Glazing.

**Catalog Description**

Focus on various building materials and construction techniques would be emphasised based on the performing standards and codes, wherein application of each material would be discussed in detail, both in the context of historical and contemporary methodology. With time, each topic can also focus on latest trends in practice and usage of new technology/materials.

**Course Content**

**Unit-I. Doors**

Types of doors based on the usage (revolving, swing, rolling shutter, safety doors, collapsible, etc.), hardware fixtures, joinery, door-fixing details, and types of materials used in doors (metal, glass, aluminum, & PVC) & UPVC windows, doors etc.

*Set of drawings: Types of doors (joinery and fixing details), fire-rated doors, precast doors, etc.*

**Unit-II. Windows and Ventilators**

Types of windows based on the make (sliding, casement etc.) and material (steel, glass and aluminum) hardware fixtures, joinery, window fixing details.

*Set of drawings: Types of windows and ventilators (joinery and fixing details).*

**Unit-III. Structural Glazing, Curtain wall & Spider Glazing**

Types of Curtain wall Glazing -Unitized & Stick Glazing

*Case study & report:* **Structural Glazing, Curtain wall & Spider Glazing** *(joinery and fixing details)*

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning.

**Reference Books/Materials**

1. Barry, R. (1999). The Construction of Buildings Vol. 2. 5th Ed. New Delhi : East-West Press.
2. Bindra, S.P. and Arora, S.P. (2000). Building Construction: Planning Techniques and Methods of Construction, 19th Ed. New Delhi : Dhanpat Rai Publications.
3. Ching, F. D. K. (2000). Building Construction Illustrated. 3rd Ed. New York : Wiley.
4. Edward, A. and Piano, J. (2009). Fundamentals of Building Construction: Materials and Methods. 5th Ed. Hoboken : John Wiley & Sons.
5. Foster, J. S. (1963). Mitchell Building Construction: Elementary and Advanced. 17 Th Ed. London : B.T. Batsford Ltd.
6. Hailey and Hancork, D. W. (1979). Brick Work and Associated Studies Vol.II. London : MacMillan.
7. McKay, W. B. (2005). Building Construction Metric Vol. 1–IV, 4th Ed. Mumbai :Orient Longman.
8. Moxley, R. (1961). Mitchell's Elementary Building Construction. London : B. T. Batsford.
9.Rangwala, S. (2004). Building Construction. 22nd Ed. Anand.: Charotar Pub. House.
10. Sushil-Kumar, T. B. (2003). Building Construction, 19 Th Ed. Delhi : Standard Publishers.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Focus on various building materials and construction techniques based on the performing standards and codes. | PSO2 |
| CO2 | Understand latest trends in practice and usage of new | PO1, PO7 |

| | | |
|---|---|---|
| | technology/ materials | |
| **CO3** | Understand latest trends in practice and usage of new technology/ materials | **PO2, PO3, PSO5** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | | | | | | | | | | | **3** |
| CO2 | | | **2** | | | | | | | | | **3** |
| CO3 | | | | | | **2** | | | | | | **3** |
| CO4 | | | | | | | | | | | **3** | |
| CO5 | **3** | | | | | | | | | | | **3** |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | 3=strongly mapped | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneur ship/ Skill Development** | **Employabilit y** | Details of metal, glass, aluminum PVC & UPVC doors | Details of metal, glass, aluminum windows & ventilator | Structural Glazing, Curtain wall & Spider Glazing | |
| | **Entrepreneur ship** | Details of metal, glass, aluminum PVC & UPVC doors | Details of metal, glass, aluminum windows & ventilator | Structural Glazing, Curtain wall & Spider Glazing | |
| | **Skill Development** | Details of metal, glass, aluminum PVC & UPVC doors | Details of metal, glass, aluminum windows & ventilator | Structural Glazing, Curtain wall & Spider Glazing | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | market surveys for building materials and study of latest building materials in the building construction | | case studies of architectural and interior projects where the above-mentioned materials have been innovatively used. | |

| | | | | | |
|---|---|---|---|---|---|
| | | industry. | | | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Sustainable Development and Global Citizenship (SDG 4.7), Safe and Inclusive Learning Environments (SDG 4.a) |
| **NEP** | | Curriculum and Pedagogy in Schools: Learning Should be Holistic, Integrated,Enjoyable, and Engaging (4.1 - 4.46) |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development |

| APID327B | COMPUTER APPLICATION-III | L | S | T | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 0 | 4 | 2 |
| **Pre-requisites/Exposure** | | | | | | |
| **Co-requisites** | | | | | | |

**Course Objectives**

1. To familiarize with software associated with making drawing, formatting, and presentation
2. Development of effective presentation techniques

**Course Outcomes**

On successful completion of this course, the students have capability to
CO1. Learn presentation software
CO2. Able to create good quality interior drawings in 3D Software's by rendering

**Catalog Description**

Empowering students to use computers as presentation and to familiarize realistic rendering and presentation techniques

**Course Content**

**Unit-I. Presentations**

Introduction of various software available for presentation such as Adobe package-Photoshop, InDesign & Illustrator or equivalent

**Unit-II. Advanced 3D Modelling**

Advanced modelling, V-Ray rendering engine, or equivalent.

**Reference Books/Materials**

1. Bark, S. (2012). An Introduction to Adobe Photoshop. Ventus Publishing ApS, Sheffield.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Exam |
|---|---|---|---|
| **Weightage (%)** | **20** | **30** | **50** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Learn presentation software | **PO1, PO7** |
| **CO2** | Able to create good quality interior drawings in 3D Software's by rendering | **PO3, PO6, PSO1, PSO3** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **1** | | | **2** | | | | **1** | | | | |
| CO2 | **3** | | | **2** | | | | **2** | | | | |
| CO3 | **2** | | | **2** | | | | **3** | | | | |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | Getting Started Revit Architecture | Building the Model and Modify | Presentation | |
| | **Entrepreneurship** | Getting Started Revit Architecture | Building the Model and Modify | Presentation | |
| | **Skill Development** | Getting Started Revit Architecture | Building the Model and Modify | Presentation | |
| **Relevance to the Ethics, Gender,** | **Professional Ethics** | | | | |
| | **Gender** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Human Values, Environment & Sustainability** | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Youth and Adult Literacy (SDG 4.6) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1- 6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: E |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development , Hands on work. |

| **APID333A** | **MODERN WORLD ARCHITECTURE** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | 0 | 0 | 0 | 2 |
| **Pre-requisites/Exposure** | Knowledge of European and Indian Architectural history. | | | | | |
| **Co-requisites** | -- | | | | | |

**Course Objectives**

1. To understand the growth and development of architecture and appreciation of the role of the intangibles that brought this growth & development from the 18th to 21st century to the advent of European, Indian and global development.
2. Understand relevance of different kinds of architectures.
3. The student starts to understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present e.g the journey of the dome in the Indian context.

4. The architectural study is to be linked with the social developments of civilizations, geographical and geological factors, materials and structures etc.

**Course Outcomes**

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

CO1. The course is designed to arouse in the student a sense of curiosity and to sharpen his powers of observation. To generate an understanding about the development of civilizations and its impact on modern architecture.
CO2. To understand the chronological study of the world architecture starting with development of civilizations in context of location, climate, socio-cultural, historical, economic and political influences.
CO3. Understanding the modern world buildings and surroundings in terms of their context of location, climate as well as the geographical, cultural, historical, economic and political influences of the time.
CO4. Understanding architecture of the period as a solution to the need or demands of the society.

**Catalog Description**

Modern World Architecture intends to form a connection between past and present in the context of architecture. The student starts to understand the evolution of forms, character, use of techniques and materials and their impact as a continuous process from the past to the present e.g the journey of the dome in the modern context. The architectural study is to be linked with the social developments of civilizations, geographical and geological factors, materials and structures etc.
The course is designed to arouse in the student a sense of curiosity and to sharpen his powers of observation. The students will generate an understanding about the development and evolution of architecture as a culmination of various factors. The students understand the building types and development of architectural form and character based on tangible (materials, construction techniques) and intangible factors (belief systems, needs of different religions, dynasties and influences). This course will ignite creative thoughts and fuel new imaginations. After completing the course, students will be able to understand the purpose of the subject and the implementation of history in today's design.

**Course Content**

**UNIT I** **8Hrs**

**Colonial Architecture in India – (late 18th to early 20th century):**

- Colonial culture reflecting in the architecture of India, Emphasis on the buildings of Kolkata, Goa, Delhi & Mumbai.
- Portuguese-Goa, Dutch-Coromandel, Malabar, French-Pondicherry
- Birth of Indo Sarcenic Architecture- Lutyen's Delhi

**UNIT II** **8Hrs**

- Modern architecture: Various modern movements in different parts of the Western world and their role in defining Modern architecture taking examples of Architects ( Le Corbusier, FLW, Mies van deRohe) /Artist and their works such as (Basically to learn the difference of Architecture style between all)
- Post Impressionism,
- Expressionism,
- Art Nouveau,
- Surrealism,
- Abstract Expressionism,
- Cubism
- In Indian Context: Public Works Department (PWD) and its role in the works of Indian Architects.
- Buildings of New Delhi

**UNIT III** **8Hrs**

**(Postmodern Architecture)**

(Architecture of early 19th and late 20th century): Architects Philosophies & their works

- American architecture
- Birth of American Skyscrapers
- Introduction to Chinese Architecture style.

**UNIT IV** **8Hrs**

(Brief Introduction to various styles)

- Constructivism DE –Constructivism (Examples of various Architects works)
- Biomimetic-Gherkin Building, London
- Parametricism

**Text Books**

1. Cruickshank, D., Fletcher, B., Saint A., "Banister Fletcher's - A History of Architecture", Architectural Press.

**Reference Books/Materials**


1. Snyder, J and Catanese, A, "Introduction to Architecture", McGraw-Hill,
2. Farrelly, Lorraine, "The Fundamentals of Architecture", Ava Publishing
3. Voordt and Wegen, "Architecture in Use", Architectural Press,
4. Smithies, K.W., "Principles of Design in Architecture", Van Nostrand Reinhold Co,
5. Roger H. Clark and Michael Pause, "Precedents in Architecture",Van Nostrand Reinhold Co.
6. Parmar, V. S., "Design Fundamentals in Architecture", Somaiya Publications Pvt. Ltd.


**Web References:**

1. http://en.wikipedia.org/wiki/Architectural_theory

2. http://www.britannica.com/EBchecked/topic/32876/architecture/31858/Theory-of-architecture

3. http://www.greatbuildings.com

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Continuous Assessment test | Mid-term examinations | Quizzes/Tutorials/ Assignment etc | Attendance | End term examinations |
|---|---|---|---|---|---|
| Weightage (%) | 10 | 20 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | The course is designed to arouse in the student a sense of curiosity and to sharpen his powers of observation. | PO1, PO7 |
| CO2 | To understand the chronological study of the world architecture starting with development of civilizations in context of location, climate, socio-cultural, historical, economic and political influences. | PO2,PO4 |
| CO3 | Understanding of the periods in terms of their context of location, climate as well as the geographical, cultural, historical, economic and political influences of the time. | PO3, PO4 |

| | | |
|---|---|---|
| **CO4** | Understanding architecture of the period as a solution to the need or demands of the society. | **PO5, PO6** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **2** | | | | **2** | | | | | |
| CO2 | | | **3** | | | | **2** | | | | | |
| CO3 | | | **3** | | | | **2** | | | | | |
| CO4 | | | **3** | | | | **2** | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | Colonial Architecture in India | | | |
| | **Global** | Colonial Architecture in India | Various modern movements in different parts of the Western world and their role in defining Modern architecture | Postmodern Architecture. Architecture of early 19th and late 20th century | Constructivism, deconstructivism & Parametricism |
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics,Gender, HumanValues, Environment & Sustainability** | **Professional Ethics** | | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Quality Education |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1-11.13) Overlapping the climatic, political, economic conditions to generate Art and Architecture expression of the modern world |
| **POE/4th IR** | | Global Education Knowledge |
| | | |

| **APID329A** | **ESTIMATION, COSTING & SPECIFICATION** | L | T | P | C |
|---|---|---|---|---|---|
| **Version 1.0** | | 2 | 0 | 0 | 2 |
| **Pre-requisites/Exposure** | Basics Mathematics | | | | |
| **Co-requisites** | | | | | |

**Course Objectives**

This course is intended to impart students with the necessary technical knowledge for preparation of Specifications and calculating estimates and detailed costing for small to medium scale projects

**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. To Understand the specification and preparation of items as an architect
CO2. To Develop an understanding & preparation of tentative estimate of buildings
CO3. Learns how to setup rate analysis

**Catalog Description**

To initiate the students into theory and practice of estimation and quantity surveying while developing the understanding of specification writing.

**Course Content**

**Module-1 Specifications (Materials)** **8Hrs**

Introduction, importance and scope. Types of specifications, Correct form and sequence of clauses for writing specifications. Study and uses of standard specifications viz; drafted by

C.P.W.D. Writing detailed specifications for various building materials e.g. Bricks, Aggregates (fine & coarse), Cement, Reinforcement, Timber, Glass and Paints.

**Module-2 Specification (Items of works)** **8Hrs**

Writing detailed specifications for various items of work e.g. Earthwork in foundation, Cement concrete, Reinforcement cement concrete work, Brick work in cement mortar, Damp proof course, Wood works (door & windows), Glazing, Plastering (cement & sand), Flooring (cement concrete & tiles), Distempering (dry & oil bound), Painting on wood & iron work, Water proof cement painting, Brick bat coba terracing.

**Module-3 Estimation** **8Hrs**

Introduction, Importance & scope. Types of Estimates – Preliminary, Plinth area, Cubical content, Approximate quantity, Detailed / Item rate method estimates. Method of Estimation – Separate / individual wall, Centre line methods of estimation.

**Module-4 Estimation (Exercises)**

Exercises in estimation using different methods, for small or medium size of Interior buildings.

**Module-5 Rate Analysis** **8Hrs**

Labour out turns and norms of consumption of basic materials. Principles of analysis of rates, Market / DSR rates of labour and materials. Exercises in rate analysis of various items of work mentioned in Module – 2.

**Module-6 Accounting Procedures**

Introduction to P.W.D accounts procedure, measurement book, daily labour, muster roll, stores, stock, and issue of material from stock, indent form, impress account, cash book, and mode of payment

**Text Books:**

This course does not have a text book.

**REFERENCE BOOKS**

1. Dutta, B. N. (2003) *Estimating and Costing*, UBS Publishers
2. Birdie, G. S. *Estimating and Costing*
3. Chakraborthi, M. *Estimation, Costing and Specifications*, Laxmi Publications
4. Kohli, D.D and Kohli, R.C. (2004) A Text Book of Estimating and Costing, S.Chand & Company Ltd.
5. Brook, Martin. (2004) *Estimating and Tendering for Construction Work*, 3rd edition, Elsevier.
6. Ashworth, A. (1999) *Cost studies of buildings*, Pearson Higher Education
7. Buchan, R., Grant, F. and Fleming, E. (2006) *Estimating for Builders and Quantity Surveyors*, 2nd edition,

Butterworth-Heinemann
8. Cross, D.M.G. (1990) *Builders' Estimating Data*, Heinemann-Newnes
9. McCaffer, R. and Baldwin, A. (1991) *Estimating and Tendering for Civil Engineering Works*, 2nd edition, BSP
10. Sher, W. (1997) *Computer-aided Estimating: A Guide to Good Practice*, Addison Wesley Longman
11. (2004) *Standard Handbook for Civil Engineers*, McGraw-Hill
12. Standard Schedule of Rates for Delhi, CPWD & UPPWD.
13. Standard Specifications, CPWD & UPPWD
14. I. S. 1200 Parts I to XXV – Method of Measurement of Building and Civil Engineering Works, Bureau of Indian
Standards
15. National Building Code of India (Latest Edition), Bureau of Indian Standards.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | TEST 1 | TEST 2 | Quizzes/Tutorials/ Assignment 1 | Quizzes/ Tutorials/ Assignment 2 | Attendance | End term examinations |
|---|---|---|---|---|---|---|
| **Weightage (%)** | **10** | **10** | **10** | **10** | **10** | **50** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | To Understand the specification and preparation of items as an architect | **PO1, PO2** |
| **CO2** | To Develop an understanding & preparation of tentative estimate of buildings | **PO2, PO3** |
| **CO3** | To Learns how to setup rate analysis. | **PO3, PO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **1** | | | | | | | **1** | | |
| CO2 | | | **1** | | | | | | **2** | **2** | | |
| CO3 | | | **3** | | | | | | | **3** | | |
| CO4 | | | **3** | | | | | | | **3** | | **2** |
| CO5 | | | **2** | | | | | | | | **3** | **2** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | Specifications (Materials) | Specification (Items of works) | Estimation | Exercises in estimation using different methods, for small or medium size buildings |
| | **Entrepreneurship** | Specifications (Materials) | Specification (Items of works) | Estimation | Exercises in estimation using different methods, for small or medium size buildings |
| | **Skill Development** | | | Estimation | |
| **Relevance to the Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | Exercises in estimation using different methods, for small or medium size buildings |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

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|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1-11.13)<br>Professional Education (17.1-17.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| APID323A | **FURNITURE DESIGN-III** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | - | - | 3 | - | 3 |
| **Pre-requisites/Exposure** | Anthropometry | | | | | |
| **Co-requisites** | Types of furniture | | | | | |

**Course Objectives**

1. To know all about modular furniture.
2. To develop a thorough understanding about conceptualisation and visualisation of furniture.
3. Use of standards, functions of spaces and application of knowledge gained from other subjects, in design.
4. To design furniture in line with Interior Design project of current semester.

**Course Outcomes**

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

CO1. Modular furniture and efficient space planning.
CO2. Visualize, analyzed already built furniture.
CO3. Create simple furniture using basic techniques.
CO4. Describe and evaluate the methods of material manipulation and design.

**Catalog Description**

Design of storage systems in interior spaces – like kitchen cabinets, wardrobes closets, book cases, show cases, display systems etc.

**Course Content**

The assignments could include the following:

- Furniture design with focus on its design parameters, ergonomics etc.
- Modular furniture design
- Drawings and prototype. Survey of several modular systems available for different functions in the market.
- Design of kitchen cabinets for a given kitchen.
- various materials, combination of materials and its application in furniture design
- Exploration of wood, metal, glass, plastics, FRP as materials for system design. Cost criteria of furniture design.
- furniture found in different states in India.
- Design for middle and lower middle-income groups- elements of living units, education institutes, health facilities, street elements etc.

**Text Books**

1. Bradley Quinn, Mid-Century Modern: Interiors, Furniture, Design Details, Conran Octopus Interiors, 2006.

**Reference Books/Materials**

1. Time-Saver Standards for Architectural Design Data
2. Architectural Standard Ernst Peter Neufert Architects Data
3. Time-Saver Standards for Building Types

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid term Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Modular furniture and efficient space planning. | PO4, PO7, PSO3, PSO5 |
| CO2 | Visualize, analyzed already built furniture. | PO3.PO4, PO7, PSO3, PSO5 |

| | | |
|---|---|---|
| **CO3** | Create simple furniture using basic techniques. | **PO1, PO2, PO3, PO4, PO5, PO7, PSO3, PSO5** |
| **CO4** | Develops systematic design approach and space planning through furniture as elements of design. | **PO1, PO2, PO3, PO4, PO5, PO7, PSO3, PSO5** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | | **3** | | | **3** | | | **3** | | **3** |
| CO2 | | | **2** | **2** | | | **2** | | | **3** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | **3** | | **3** | | | **2** | | **2** |
| CO4 | **3** | **3** | **3** | **3** | **3** | | **3** | | | **3** | | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | Furniture design with focus on its design parameters, ergonomics etc. | | | Design for middle and lower middle-income groups- elements of living units, education institutes, health facilities, street elements etc. |
| | **Entrepreneurship** | Furniture design with focus on its design parameters, ergonomics etc. | | | Design for middle and lower middle-income groups- elements of living units, education institutes, health facilities, street elements etc. |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | **Skill Development** | Furniture design with focus on its design parameters, ergonomics etc. | | | Design for middle and lower middle-income groups- elements of living units, education institutes, health facilities, street elements etc |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | Design for middle and lower middle-income groups- elements of living units, education institutes, health facilities, street elements etc. |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

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|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| APID331A | DISPLAY ART-IV | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 2.0 | | - | - | - | 4 | 2 |
| Pre-requisites/Exposure | Observation & explorative thinking | | | | | |
| Co-requisites | Creativity | | | | | |

**Course Objectives**

1. To understand diverse display spaces and their expression.
2. To focus on material exploration.
3. To explore methods and techniques of display items
4. To understand role of lighting and various aspects of it in display.

**Course Outcomes**

On successful completion of this course, the students have capability to
CO1. Understand diverse space typologies and sensory aspect related to them.
CO2. Develop handling of different materials.
CO3. Developing finer aesthetics and handling of spaces like transient spaces.
CO4. Lighting and showcasing of diverse products.

**Catalog Description**

The course is about aspects of display in transient spaces. The aspects that will be covered in every semester will focus on

1. Material exploration, that includes, understanding material properties, handling and tools of display.
2. Display methods, that includes, strategic placement of a display item.
3. Lighting, that includes, type of lighting, placement and its impact.
4. Overall impact- The uniqueness of display item & impact on the viewer.

**Course Content**

Typology of space- transient spaces
Suggestive spaces- Museum, Display galleries, Pavilion, Exhibition
Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc

**Text Books:**

This course does not have a text book as this is a practical subject with hands on learning and working on display objects and techniques.

**Reference book(s) [RB]:**

Francis D K Ching; Interior Design Illustrated, 4th Edition; John Wiley and Sons, USA. Time Saver Standards, Neufert.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid-term Jury | End term Internal Jury | End term External Jury |
|---|---|---|---|
| Weightage (%) | 20 | 30 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand diverse space typologies and sensory aspect related to them. | **All except PO5** |
| **CO2** | Develop handling of different materials. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |
| **CO3** | Develop finer aesthetics and handling of transient spaces. | **All except PO5** |
| **CO4** | To understand role of lighting and various aspects of it in display. | **PO1, PO3, PO4, PSO2, PSO3, PSO5** |

**Programme and Course Mapping**

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | **3** | **3** | **3** | **3** | | **3** | **2** | **2** | **3** | **3** | **3** | **3** |
| CO2 | **2** | | **3** | **3** | | | | | **3** | **3** | | **3** |
| CO3 | **3** | **3** | **3** | **3** | | **3** | **3** | **3** | **3** | **3** | **3** | **3** |
| CO4 | **3** | | **3** | **3** | | | | | **2** | **2** | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |

1=lightly mapped 2= moderately mapped 3=strongly mapped

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc |
| **Relevance To the Employability Entrepreneurship/ Skill Development** | **Employability** | | | | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc |
| | **Entrepreneurship** | | | | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc |
| | **Skill Development** | | | | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | Suggestive materials- Bamboo, Wood, Glass, Metal, Plaster of paris, Clay- terracotta etc |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

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|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Global Education Knowledge, Global Scoring<br>Cross cultural programmes | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| VAC-1 | VAC-I (HUMAN VALUES & SOCIOLOGY) | L | T | P | C |
|---|---|---|---|---|---|
| **Version 1.0** | | **2** | **0** | **0** | **0** |
| **Pre-requisites/Exposure** | Understanding basics | | | | |
| **Co-requisites** | Logical thinking | | | | |

**Course Objectives**

1. To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity; which forms the basis of Universal Human Values and movement towards value-based living in a natural way.
3. To introduce students to the basic social processes of society, social institutions and patterns of social behavior.
4. To understand the relationship between the individual and environment or social setting, spaces and built environment.

**Course Outcomes**

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

CO1. To appreciate the essential complementarily between 'VALUES' and 'SKILLS' for happiness and prosperity.

CO2. To understand the relation between life and profession and living in harmony at various levels of existence.

CO3. To understand the relationship between human and social settings.

CO4. To understand the relationship between architecture, spaces and built environment.

**Catalog Description**

Focus shall be on learning the value of education and self-exploration which leads to happiness and prosperity, living in harmony at various levels of existence- within yourself, family and society, nature and existence. Also, understand the basics of Sociology and its relationship with architecture, spaces and built environment.
Learning through case studies and literature studies along with relevant site visits shall be preferable.

**Course Content**

Unit-I. Value Education: 8 lectures

- Understanding the need, basic guidelines, content and process for Value Education
- Self-Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration
- Continuous Happiness and Prosperity- A look at basic Human Aspirations
- Right understanding, Relationship and Physical Facilities- 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

Unit-II. Understanding harmony at various levels of existence: 8 lectures

- Understanding Harmony in the Human Being - Harmony in Myself!
- needs of Self ('I') and 'Body' - Sukh and Suvidha
- Understanding the harmony of I with the Body: Sanyam and Swasthya
- Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship
- Understanding values in human-human relationship; meaning of Nyaya, Trust (Vishwas) and Respect (Samman) as the foundational values of relationship
- Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals
- Understanding Harmony in the Nature and Existence - Whole existence as Co-existence
- 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 (Sah-astitva) of mutually interacting units in all-pervasive space

Unit-III. Sociology: 8 lectures

- What is Sociology? Relationship between Sociology and Architecture with examples.
- Concept of society and its types- rural and urban
- Social Institutions- family, educational, religion
- Social Interaction- Verbal and non- verbal

Unit-IV. Space and built environment 8 lectures

- Sociology of space and built environment
- Utilisation of space for social activities in rural and urban areas.
- Social history of built environment- space and power

**Text Books**

**Reference Books/Materials**

1. R.R Gaur, R Sangal, G P Bagaria, A foundation course in Human Values and professional Ethics, Excel books, New Delhi, 2010, ISBN 978-8-174-46781-2
2. Sachdeva DR, Intro to Sociology, Vidya Bhusham Kitab Mahal
3. Giddens, Anthony, Sociology, Polity Press, Cambridge (UK), 2006

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Continuous Assessment test | Mid-term examinations | Quizzes/Tutorials/ Assignment etc | Attendance | End term exams |
|---|---|---|---|---|---|
| Weightage (%) | 10 | 20 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | To appreciate the essential complementarily between 'VALUES' and 'SKILLS' for happiness and prosperity. | PO5, PO6 |
| CO2 | To understand the relation between life and profession and living in harmony at various levels of existence. | PO5, PO6 |
| CO3 | To understand the relationship between human and social settings. | PO5, PO6 |
| CO4 | To understand the relationship between architecture, spaces and built environment. | PO7 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **1** | **3** | **3** | | | | | | **3** | |
| CO2 | | | | | **3** | | | | | | **3** | |
| CO3 | | | | | | **2** | | | | | **3** | |
| CO4 | | | | | | | **3** | | | | **3** | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, Regional global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneur ship/ Skill Development** | **Employabilit y** | | | | |
| | **Entrepreneur ship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics,** | **Professional Ethics** | | | | |
| | **Gender** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Gender, Human Values, Environment & Sustainability** | **Human Values** | Value Education | Understanding harmony at various levels of existence | Relationship between Sociology and Architecture | Utilisation of space for social activities in rural and urban areas |
| | **Environment & Sustainability** | | | | |

| | | |
|---|---|---|
| **SDG** | | Gender Equality and Equal Access for All ,promote inclusive and sustainable industrialisation and foster innovation (SDG 9) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1- 6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) |
| **POE** | | Practical Courses from Industry/Alumni, Technical Skills that match Industry Needs, Focus on Employability Skills (Local/Regional and Global), Consulting Field Projects,Team Work |
| **4th IR** | | Skill Embedded Courses Development,Skill Development |

## SEMESTER VI

| APID318A | INTERIOR DESIGN V | L | T | S | P | C |
|---|---|---|---|---|---|---|
| Version 1.0 | | - | - | - | 10 | 10 |
| Pre-requisites/Exposure | Basic Designing | | | | | |
| Co-requisites | Logical thinking | | | | | |

**Course Objectives**

1. This course is intended to provide skills for designing larger scale institutional and commercial projects with emphasis on detailing, custom designs, specification writing etc.
2. To develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making.

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**Course Outcomes**

On successful completion of this course, the students have capability to

CO1. Develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making in large scale projects like institutional and commercial projects with emphasis on detailing, custom designs and their specification writing.

CO2. Develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making

CO3. Able to articulate their ideas and develop skills to communicate them

C04. Learn details in Interior Construction Detailing, Way finding/signage and graphic identification, Decorative Accessories, Building Codes, Rendering (hand and computer generated), Custom designed furniture and cabinetry, Specification

**Catalog Description**

1. To develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making.
2. Able to create value by applying their learnings in creating a simple Interior design.

**Course Content**

- The course shall be focused on:
- Interior Construction Detailing

- Way finding/signage and graphic identification
- Decorative Accessories
- Building Codes.
- Rendering (hand and computer generated).
- Custom designed furniture and cabinetry
- Specification Writing
- Cost estimating
- Selection of sustainable/green materials

The list of suggested topics to be covered as design problems:

- Hospitality Design, Retail Design, Healthcare Design and Office systems Urban Interiors – Shopping malls, streets, Town squares, Fair grounds Interior Ports – air ports, Bus stops, Railway stations, boats/ports Exhibition displays – urban level and National level.
- Mobile units – buses, cars, railway coaches etc.

**Reference Books/Materials**

1. Karlen Mark, Space planning Basics, Van Nostrand Reinhold, New York, 1992.
2. Joseph D Chiara, Julius Panero, & Martin Zelnick, Time Saver standards for Interior Design & space planning, 2nd edition, Mc-Graw Hill professional, 2001.
3. Francis.D. Ching & Corky Bingelli, Interior Design Illustrared,2nd edition, Wiley publishers, 2004
4. Time-Saver Standards for Building Types
5. Architectural Standard Ernst Peter Neufert Architects Data
6. 6.Time-Saver Standards for Architectural Design Data

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | Mid Term Jury | End Term Internal Jury | End Term Studio Exam | End Term External Jury |
|---|---|---|---|---|
| Weightage (%) | 20 | 30 | 20 | 30 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | Develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making in large scale projects like institutional and commercial projects with emphasis on | PO1,PO2 |

| | | |
|---|---|---|
| | detailing, custom designs and their specification writing. | |
| **CO2** | Develop skills for a comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making | **PO2, PO3** |
| **CO3** | Able to articulate their ideas and develop skills to communicate them | **PO4,PO5** |
| **CO4** | Learn details in Interior Construction Detailing, Way finding/signage and graphic identification, Decorative Accessories, Building Codes, Rendering (hand and computer generated), Custom designed furniture and cabinetry, Specification | **PO5, PO6** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **2** | **2** | **2** | **2** | | | **1** | **1** | **2** | | | **1** |
| CO2 | **2** | **3** | **2** | **2** | | | **2** | **1** | | | | **1** |
| CO3 | **3** | **2** | | **1** | | | **3** | **2** | | | | **1** |
| CO4 | | | **3** | **2** | | | **4** | **3** | **2** | **2** | **2** | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | 2= moderately mapped | | | | | 3=strongly mapped | | | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | portfolio shall consist of the various drawings, observations, technical graphic data, design, structure, construction methods, services, use of material etc. obtained during the process of training. | | | |
| | **Entrepreneurship** | portfolio shall consist of the various drawings, observations, technical graphic data, design, structure, construction methods, services, use of material etc. obtained during the process of training. | | | |
| | **Skill Development** | processes and challenges of designing within constraints of time is learnt. | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | portfolio shall consist of the various drawings, observations, technical graphic data, design, structure, construction methods, services, use of material etc. obtained during the process of training. | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |
| | **Gender** | | | | |

| | | |
|---|---|---|
| **SDG** | | Gender Equality and Equal Access for All ,promote inclusive and sustainable industrialisation and foster innovation (SDG 9) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) |
| **POE** | | Practical Courses from Industry/Alumni, Technical Skills that match Industry Needs, Focus on Employability Skills (Local/Regional and Global), Consulting Field Projects,Team Work |
| **4th IR** | | Skill Embedded Courses Development,Skill Development |

| APIDE1A | ELECTIVE-I (ACOUSTICS & FIRE FIGHTING) | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Understanding basics | | | | | |
| **Co-requisites** | Logical thinking & Approach | | | | | |

**Course Objectives**

This course will give basic understanding about the science behind building acoustics. It will also help students for applying prediction methods to assess the functional requirements of firefighting services in the buildings.

**Course Outcomes**

With the successful completion of the course student should be able to

CO1. Understand the basics of acoustics / Fire Fighting

CO2. Develop capability to apply the fundamentals of acoustics /Fire Fighting design of building

CO3. Communicate with technical accuracy in a professional and an academic environment

**Catalog Description**

To familiarize the students with fundamentals of acoustics and firefighting in building services & their integration with architectural design

**Course Content**

UNIT I **8Hrs**

Acoustics

- Introduction to the study of acoustics, basic terminology, sound and distance – inverse square law; absorption of sound, sound absorption co-efficient.
- Reverberation time, Sabines' formula, various sound absorbing materials. Behavior of sound in enclosed spaces, Acoustical defects
- Noise and its types – outdoor and indoor noise, air born noise, structure borne noise, impact noise.
- Noise control at neighborhood and city level.

UNIT II **8Hrs**

- Acoustical design for halls used for drama, music, speech, cinema theatres and open air theatres.
- Acoustical materials and constructional measures of noise control, insulation of machinery, sound insulation.

UNIT III **8Hrs**

- Fire Fighting & Fire Protection
- Causes of fire, reasons for loss of life due to fire, development of fire, fire load, fire hazards

- National Building Code: grading of structural elements due to fire, classification of building types, norms for fire-exit ways and building materials, concept of fire zoning, doorways, stairways, passages and corridors, fire escapes etc.
- Rules for fire protection and firefighting requirements for high-rise buildings in India
- Brief description of characteristics of combustible and noncombustible materials in case of fire

UNIT IV **8Hrs**

- Fire resisting materials, fire resistant rating
- Concepts in passive fire protection and control – including design of escape routes, pressurization and compartmentation, etc.
- Active fire control using portable extinguishers. Basic concepts in fixed fire fighting installations.
- Automatic fire detection and alarm systems
- Fire preventive techniques, fire protection equipments

**TEXT BOOKS**

1. Michaeal Ermann, Architectural Acoustics Illustrated, Wiley.
2. Koenigsberger, O.H; Manual of Tropical Housing and Building: Universities Press, 2010.

**REFERENCE BOOKS**

1. Catalogues of leading Audio equipment's companies
2. Egan, Architectural Acoustics
3. Kandaswamy, Architectural Acoustics and Noise Control
4. J.E. Moore, Design for Good Acoustics and Noise Control.
5. National Building Code 2005 • Templeton, D., Acoustics in the Built Environment.
6. A.B. Wood, A Text book of sound. • Yarwood, T.M., Acoustics.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme**

| Components | TEST 1 | TEST 2 | Quizzes/Tutorials/ Assignment 1 | Quizzes/ Tutorials/ Assignment 2 | Attendance | End term examinations |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Understand the basics of acoustics/ Fire Fighting | **PO1, PO2** |
| **CO2** | To Develop capability to apply the fundamentals of acoustics/Fire Fighting in the design of building | **PO2, PO3** |
| **CO3** | To Communicate with technical accuracy in a professional and an academic environment<br>. | **PO3, PO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **1** | **-** | **-** | **-** |
| CO2 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **-** | **-** | **1** | **-** |
| CO3 | **3** | **2** | **2** | **2** | **3** | **-** | **3** | **-** | **1** | **2** | **1** | **-** |
| CO4 | | | | | | | | | | | | |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | National Building Code | |
| | **Global** | | | | |
| **Relevance To the Employabilit** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **y/ Entrepreneurship/ Skill Development** | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | Fire Fighting & Fire Protection National Building Code | |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| **APIDE7A** | **ELECTIVE-II(HVAC)** | L | T | S | P | C |
|---|---|---|---|---|---|---|
| **Version 1.0** | | 2 | - | - | - | 2 |
| **Pre-requisites/Exposure** | Understanding basics services | | | | | |
| **Co-requisites** | Logical thinking and implementation in design | | | | | |
| | | | | | | |

**Course Objectives**

1. To appreciate how buildings can be made more comfortable by adding mechanical systems like artificial ventilation, air conditioning and conveyor systems.

**Course Outcomes**

1. Elementary knowledge of building services: air-conditioning inside buildings.
2. Understand methods of air conditioning.
3. Understanding of elevators and escalators.

**Catalog Description**

This course imparts the basic concepts of environment and climate. It enables them to design and enhance a site according to the location, climate and needs of the client. The course introduces the basic concepts about human comfort, ways of achieving it, solar geometry- its implementation in designing buildings as per orientation, shading devices-designing, wind movement patterns around buildings, etc.

**Course Content**

**UNITI** **8Hrs**

- Human Comfort conditions, Need for mechanical ventilation in buildings. Rate of ventilation for different occupancies, Methods and equipment employed for mechanical ventilation in buildings.

  **Air Conditioning**
- Principles of Air-conditioning, Indoor Air Quality, Carnot cycles, gas laws, refrigeration, cycles and refrigerants.
- Architectural considerations for air-conditioned buildings
- Definition, advantages and disadvantages, brief introduction to psychometric process, air-cycle and refrigeration cycle. Summer and winter air-conditioning, calculation of air-conditioning loads
- Zoning: purpose and advantages. Air-distribution systems: Ducts and duct systems. Air-outlets
- Compressors, condensers, evaporators, heat exchangers, etc.

**UNIT II** **8Hrs**

**Air-conditioning methods and equipment:**

- Window units, split units, ductable air conditioners and package system.
- Central air-conditioning systems: AC plant and room, all air systems and chilled water systems, AHU and FC units, Building ducting, diffusers and grills.
- Location of air-conditioning equipment in buildings. Architectural requirement of various equipment, Residential and commercial air-conditioning, energy conservation techniques.
- Introduction to the concept of 'Clean Room' and their architectural requirements

**UNIT III:** **8Hrs**

- Elevators (Lifts) and escalators
- Brief history-types of Elevators like traction, hydraulic etc. Double decker, sky lobby, lift lobby, lift interiors etc.

- Definition and components
- Elevatoring a building: environmental considerations i.e., location in building, serving floors, grouping, size, shape of passenger car, door arrangement etc.
- Types of lifts, passenger, capsule, hospital lift; goods-lift etc.

**UNIT IV** **8Hrs**

- Working and operation of lifts, parts of lifts; industry standards and capacity calculations.
- Provision to be made in buildings for installation: location, systems, sizes, equipment, spatial requirement
- Introduction to working of escalator and design, escalators location, equipment

**Text Books:**

**Reference Books/Materials**

1. Grondzik, WT, Kwok, AG, Stein, B, Reynolds, JS Mechanical and Electrical Equipment for Buildings, Wiley.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
**Examination Scheme:**

| Components | TEST 1 | TEST 2 | Quizzes/Tutorials/ Assignment 1 | Quizzes/ Tutorials/ Assignment 2 | Attendance | End term examinations |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | Elementary knowledge of building services: air-conditioning inside buildings. | **PO3, PO4, PO7** |
| **CO2** | Understand methods of air conditioning. | **PO3, PO4, PO7** |
| **CO3** | Understanding of elevators and escalators. | **PO3, PO4, PO7** |
| **CO4** | Understand working of elevators and escalators. | **PO3, PO4, PO7** |

| Programme and Course Mapping | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **1** | **-** | **-** | **-** |
| CO2 | **3** | **2** | **1** | **1** | **2** | **-** | **3** | **-** | **-** | **-** | **1** | **-** |
| CO3 | **3** | **2** | **2** | **2** | **3** | **-** | **3** | **-** | **1** | **2** | **1** | **-** |
| CO4 | **3** | **2** | **3** | **3** | **3** | **-** | **3** | **3** | **1** | **2** | **1** | **3** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | | 2= moderately mapped | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance tothe local, national, Regional global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | | | | |
| **Relevance Tothe Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | | | | working of escalator and design, escalators location, equipment |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment& Sustainability** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **SDG** | | | | | |
| **NEP** | | Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) | | | |
| **POE** | | Focus on Employability Skills (Local/Regional and Global) | | | |
| **4th IR** | | Skill Embedded Courses Development<br>Skill Development | | | |

| APID322A | INTERIOR DESIGN DISSERTATION | L | T | S | C |
|---|---|---|---|---|---|
| **Version 1.0** | | 0 | 0 | 8 | 8 |
| **Pre-requisites/Exposure** | Communication Skills in Reading and Writing | | | | |
| **Co-requisites** | Integration of RESEARCH with Design | | | | |

**Course Objectives**

1. To understand the pattern of research in the context of Interior Design.
2. To equip the students with the art of paper presentations and preparation of report.
3. Independent study and documentation of Interior Design and allied topics by individual student along with oral & visual presentation with the help of guide.

**Course Outcomes**

On successful completion of this course, the students have capability to:

CO1. To independently understand and analyze the topic related to Interior Design in terms of research already done

CO2. Formulate synopsis including objectives, scope of work, methodology of work, case studies to be undertaken, site selection culminating in broad functional requirements.

CO3. An investigation of the topic using an analysis of existing literature, case studies and other data sources.

CO4. Understand the process of presenting an interior design paper.

**Catalog Description**

The dissertation shall be based on empirical study, field work, and textual analysis in the field of interior design. It should demonstrate candidate's capacity for analysis and judgment as also her/his ability to carry out independent viewpoint in interpretation.

**Course Content**

The dissertation shall present an orderly & critical exposition of existing knowledge of the subject or shall embody results of original interpretation and analysis & demonstrate the capacity of the candidate to do independent research work. While writing the dissertation, the candidate shall lay out clearly the work done by her/him independently and the sources from which she/he has obtained other information.

The dissertation shall be well structured document with clear objectives, well-argued and appropriate conclusions indicating an appropriate level of expertise. The submission format for all stages shall be print and digital. Seminars in related areas to the dissertation topic (conceptual, historical, analytical, and comparative or in any other area related to Architecture & habitat) are required to be presented at all stages during the entire semester.

Note: Paper published in a recognized journal, shall get the student extra marks/credits.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination/Jury:**
**Examination Scheme:**

| **Components** | **Internal Jury** | **External Jury** |
|---|---|---|
| **Weightage (%)** | **50** | **50** |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| **Mapping between COs and POs** | | |
|---|---|---|
| | **Course Outcomes (COs)** | **Mapped Program Outcomes** |
| **CO1** | To independently understand and analyse the topic related to Interior Design in terms of research already done. | **PO3, PO4** |
| **CO2** | Formulate synopsis including objectives, scope of work, methodology of work, case studies to be undertaken, site selection culminating in broad functional requirements. | **PSO4, PO3** |
| **CO3** | An investigation of the topic using an analysis of existing literature, case studies and other data sources. | **PO1, PO3** |
| **CO4** | Understand the process of presenting an interior design paper. | **PO3, PSO4** |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | | | **3** | | | | | | | | | **1** |
| CO2 | | | | **3** | | | | | | | | **1** |
| CO3 | | | | | **3** | **3** | **3** | | | | | **2** |
| CO4 | | | | **3** | | **3** | | | | | | **3** |
| CO5 | | | | | | | **3** | | | | | **3** |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| Unit | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | Formulate synopsis including objectives, scope of work, methodology of work, case studies to be undertaken, site selection culminating in broad functional requirements. An investigation of the topic using an analysis of existing literature, case studies and other data sources. | | | |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | It should demonstrate candidate's capacity for analysis and judgment as also her/his ability to carry out independent viewpoint in interpretation. | | | |
| | **Entrepreneurship** | It should demonstrate candidate's capacity for analysis and judgment as also her/his ability to carry out independent viewpoint in interpretation. | | | |
| | **Skill Development** | The dissertation shall be well structured document with clear objectives, well-argued and appropriate conclusions indicating an appropriate level of expertise. | | | |
| **Relevance to the Professional Ethics, Gender, Human Values, Environment & Sustainability** | **Professional Ethics** | The dissertation shall present an orderly & critical exposition of existing knowledge of the subject or shall embody results of original interpretation and analysis & demonstrate the capacity of the candidate to do independent research work. While writing the dissertation, the candidate shall lay out clearly the work done by her/him independently and the sources from which she/he has obtained other information. | | | |
| | **Gender** | | | | |
| | **HumanValues** | | | | |
| | **Environment & Sustainability** | | | | |

| SDG | | Early Childhood/ Pre-Primary Education for all (SDG 4.2) | Skills for Decent Work (SDG 4.4) | Skills for Decent Work (SDG 4.4) | Safe and Inclusive Learning Environments (SDG 4.a) |
|---|---|---|---|---|---|

| | | |
|---|---|---|
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10) |
| **POE** | | Focus on Employability Skills (Local/Regional and Global)<br>Consulting Field Projects,Case Competitions<br>Consulting Field Projects<br>Team Work<br>Global Education Knowledge<br>Global Scoring<br>Cross cultural programmes |
| **4th IR** | | Skill Embedded Courses Development<br>Hands-on Experience<br>Skill Development<br>Soft Skills |

| **VAC-2** | **VALUE ADDED COURSE-2 (SUSTAINABILITY IN INTERIORS)** | **L** | **T** | **P** | **C** |
|---|---|---|---|---|---|
| **Version 1.0** | | **2** | **0** | **0** | **2** |
| **Pre-requisites/Exposure** | Understanding basics | | | | |
| **Co-requisites** | Logical thinking | | | | |

**Course Objectives**

1. Understanding of sustainability at global, national, regional and local levels.
2. Understanding of sustainability measuring tools
3. Understanding of various techniques of sustainability within buildings
4. Understanding of sustainable building materials in interiors

**Course Outcomes**

On successful completion of this course, the students will have

CO1. Understanding the various principles of Sustainable Architecture

CO2. A clear understanding of Global issues and challenges where they can use "sustainability tools & techniques to optimize them in an efficient at macro level also at micro level i.e. Building context

CO3. Thinking to correlate various techniques of sustainability.

CO4. Understanding of sustainable building materials in interiors to use in practical.

**Catalog Description**
To familiarize the students with the problems and methods of energy conservation through design of built forms.

**Course Content**
UNIT I : Sustainability: Overview 8 lectures

- Environmental Problems, History and definition of sustainability
- An overview of fossil fuels and renewable energy sources
- Brief introduction of Sustainable Development & Architecture
- Definitions, Principles, Challenges and responses.
- Millennium Development Goals
-

UNIT-II: Sustainability measuring tools 8 lectures

- Available sustainability measuring tools in World and India. (Overview)- LEED, GRIHA & IGBC, .ECBC

UNIT-III: Sustainability in buildings 8 lectures

- Passive building design, Principles of building technology: light, thermal performance, waste management, water conservation

UNIT-IV: - Sustainable building materials 8 lectures

- Sustainable building materials in interiors- walls, flooring, furniture
- Case studies

**Text Books**

1. Koenigsberger, O.H , Ingersoll, T.G. < Mayhew, A Szokolay, S.V. , 1973. Manual of Tropical Housing and BUilding Part1. Climatic Design, Orient Longman Pvt.Ltd.

2. Arvind Krishnan & Others – Climate Responsive Architecture, Tata Mcgraw –Hill New Delhi 2001

**Reference Books**

1. Mili Majunder, Teri – Energy – Efficient Bldg. in India – Thomson Press, New Delhi – 2001

2. J.K Nayak & Others , Energy Systems Energy Group,- Isa Annal Of Passive Solar Architecture.

**Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination**
Examination Scheme:

| Components | TEST 1 | TEST 2 | Quizzes/ Tutorials/ Assignment 1 | Quizzes/ Tutorials/ Assignment 2 | Attendance | End term examinations |
|---|---|---|---|---|---|---|
| Weightage (%) | 10 | 10 | 10 | 10 | 10 | 50 |

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

| Mapping between COs and POs | | |
|---|---|---|
| | Course Outcomes (COs) | Mapped Program Outcomes |
| CO1 | To have understanding the various principles of Sustainable Architecture | PO1, PO3 |
| CO2 | To Enhance l thinking to correlate various techniques of sustainability. | PO3, PO4 |
| CO3 | To Enhancing deep insight of Building contexts. | PO3, PO4 |

| **Programme and Course Mapping** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| CO1 | **2** | | | | | | **3** | | | | | **1** |
| CO2 | | | | **3** | | | | | | **2** | | **2** |
| CO3 | | | **2** | | | | | | | **2** | | **3** |
| CO4 | **2** | | | **2** | | **2** | **3** | | | **2** | | **2** |
| CO5 | | | | | | | | | | | | |
| CO6 | | | | | | | | | | | | |
| CO7 | | | | | | | | | | | | |
| 1=lightly mapped | | | | 2= moderately mapped | | | | | | 3=strongly mapped | | |

| **Unit** | | Unit I | Unit II | Unit III | Unit IV |
|---|---|---|---|---|---|
| **Relevance to the local, national, regional and global developmental needs** | **Local** | | | | |
| | **Regional** | | | | |
| | **National** | | | | |
| | **Global** | Sustainable Development & Architecture | Environmental Impact of Buildings | Energy Conservation through design of built forms | Introduction to Low Impact Design Strategies |
| **Relevance To the Employability/ Entrepreneurship/ Skill Development** | **Employability** | | | | |
| | **Entrepreneurship** | | | | |
| | **Skill Development** | | | | |
| **Relevance to the Professional** | **Professional Ethics** | | | | Available sustainability measuring tools in World |

| | | | | | |
|---|---|---|---|---|---|
| **Ethics, Gender, Human Values, Environment & Sustainability** | | | | | and India. (Overview)- LEED, GRIHA & IGBC, .ECBC |
| | **Gender** | | | | |
| | **Human Values** | | | | |
| | **Environment & Sustainability** | Sustainable Development & Architecture | Environmental Impact of Buildings | Energy Conservation through design of built forms | Introduction to Low Impact Design Strategies |

| | | |
|---|---|---|
| **SDG** | | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all(SDG 4.1) |
| **NEP** | | Equitable and Inclusive Education: Learning for All (6.1-6.20)<br>Towards a More Holistic and Multidisciplinary Education (11.1- 11.13)<br>Professional Education (17.1-17.5)<br>Adult Education and Lifelong Learning (21.1-21.10)<br>Online and Digital Education: Ensuring Equitable Use of Technology (24.1- 24.5) |
| **POE** | | Practical Courses from Industry/Alumni, Technical Skills that match Industry Needs, Focus on Employability Skills (Local/Regional and Global), Consulting Field Projects,Team Work |
| **4th IR** | | Skill Embedded Courses Development, Skill Development |