UTTARAKHAND BOARD OF TECHNICAL EDUCATION

JOINT ENTRANCE EXAMINATION AND TRAINING, RESEARCH DEVELOPMENT CELL, DEHRADUN

STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME

BRANCH NAME – INTERIOR DESIGN **SEMESTER – IV**

Subject Code	Subject	Period/Weeks				EVALUATION SCHEME						Total Marks	Credit Point
						Internal		External					
						Theory	Practical	Theory		Practical			
		L	T	P	TOT	Max Marks	Max Marks	Max Marks	Hrs.	Max Marks	Hrs.		
134001	Building Services	6	-	-	6	50	-	100	2.5	-	-	150	6
134004	Furniture Design	2	-	8	10	-	50	100	3.0	25	2.5	175	5
134002	Computer Aided Rendering - I	-	-	8	8	-	50	-	-	100	3.0	150	4
134005	Interior Design - III	2	-	10	12	-	100	175	**12.0	50	3.0	325	7
134003	Display and Lighting System	5	-	3	8	-	25	100	2.5	25	2.5	150	6
134052	Industrial Exposure (Assessment At Inst. Level)+	-	-	-	-	-	25	-	-	-	-	25	1
014054	General Proficiency (Disc/ Game/ SCA/NCC/NSS) #	-	-	4	4	-	25	-	-	-	-	25	1
134053	Industrial Training	Industrial training of 30 days after 4th semester would be evaluated in 5th semester through report and viva-voce											-
Total		**15**	-	**33**	**48**	**50**	**275**	**475**	-	**200**	-	**1000**	**30**

General Proficiency will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS and cultural activities, elementary mathematics, GS & G.K. etc.

\+ Industrial Exposure compulsory at minimum 2 industries or Department.

Note:- 1- Each period will be 50 minutes. 2- Each session will be of 16 weeks. 3- Effective teaching will be at least 12.5 weeks.

** External theory paper will be be continue for two days i.e. 6 hrs each day out of total 12 hrs.

Branch Code - 13

FOURTH SEMESTER
INTERIOR DESIGN

BUILDING SERVICES

L	T	P
6	-	-

Subject Code : 134001

RATIONALE

This course aims at imparting knowledge to the students in the area of interior services such as plumbing system, thermal and sound insulation and electrical services.

DETAILED CONTENTS

1. Plumbing System

a) Water supply: Hot and cold water supply system.

b) Water distribution system.

c) Types of pipes used in water supply.

d) Fittings and fixtures : Wash basin, Sinks, Bath tubs, Shower cubicles, Water closets, Urinals, Bidets, Showers (overhead and telephonic), Taps (bibcock, pillar cock, angular step cock, concealed step cock and Sensor), Jacuzzis (spirlpool, turrlpool, whirlpool), Mixers, Diverters, Shower panels, Saunas.

e) Accessories: Towel ring, Toilet paper holder, Tumbler holder, Soap dish, Towel rail, Towel rack, Grab bars, Retractable clothes line.

f) Flush valves: Concealed, Remote operated and Metropole.

g) Storage tanks: Overhead and Underground.

h) Geysers: Electric, Solar and Gas.

i) Kitchen fittings: Sinks, Garbage dispensers and Chimneys.

2. Drainage

a) Principles of drainage

b) System of drainage: One pipe system, Two pipe system and Single stack system

c) Traps: Introduction, Types, Function and Uses.

d) Inspection chamber

EXERCISE- Preparation of Plumbing layout by symbolic representation based on the project carried out in interior design-II.

3. Electrical Services

a) Wiring systems.

c) Boxes: Electrical and junction.

d) Modular switch boards and switches.

EXERCISE- Preparation of Electrical layout by symbolic representation based on the project carried out in interior design-II

4. Heating, Ventilation and Air-Conditioning (HVAC)

a) Window air conditioning.

b) Split air conditioning.

c) Package units.

d) Central air conditioning.

5. Vertical Transportation Systems

a) Lifts: Introduction, Type of lift, Sizes and Safety norms.

b) Escalators: Introduction, Uses, Sizes and Safety norms.

6. Fire-Fighting Services

a) Introduction to causes of fire, Classification office hazards, Fire rating of various building materials

b) Fire detection devices in buildings – Heat and Smoke detectors, Fire alarms.

c) Fire fighting mechanisms and devices – Sprinkler systems, Hydrants, Wet risers etc.

d) Controlling devices – Fire panels, Automated doors and windows, Fire doors, Vestibules etc.

e) Building elements for fire protection: Fire escape staircases, Ramps and Elevators

7. Communication Devices

a) Closed circuit TV

b) EPABX

c) FAX

d) Computers

8. Thermal and Sound Insulation

a) Principles of thermal insulation

b) Heat insulating materials

c) Acoustics: Introduction, Sound absorbent materials, Acoustical treatment

d) Noise: Classification and Effects of noise/sound.

e) Sound insulation: Introduction, Materials and Difference between sound insulation and sound absorption

RECOMMENDED BOOKS

1. Handbook of Designing and Installation of Services in Building Complex High Rise Buildings by VK Jain, Khanna Publishers, New Delhi.
2. Building Construction by Sushil Kumar.

FURNITURE DESIGN

L	T	P
2	-	8

Subject Code : 134004

RATIONALE

This course aims at developing competency in designing and supervising of various types of furniture items.

DETAILED CONTENTS

1. Materials: Introduction and knowledge of latest materials used in furniture designing viz, Wood, Metals, Glass and stones, composite.
2. Springs, foams and other materials used for upholstering.
3. Working Drawings: Plan, elevation, Section and View of the following furniture in different materials covered under Sr. No. 1.
   a) Set of Dining table and chairs
   b) Centre table
   c) Crockery cabinet
   d) Wardrobe
   e) Sofa
   f) Bed
   g) Reception counter
   h) Conference table
4. Fireplace with mantelpiece and mirror: Plan, Elevation and Section.

Note:

1. All the units are to be carried out though theoretical knowledge followed by practical knowledge.
2. Students should be encouraged for frequent visits to furniture industry.

COMPUTER AIDED RENDERING - I

L	T	P
-	-	8

Subject Code : 134002

RATIONALE

- To introduce various software to the students helping them in compilation of their their text/ report etc.
- To develop an understanding of software assisting in 3-Dimentional design.

DETAILED CONTENTS

Using Google Sketch Up / 3-D MAX / Revit architecture/ Chief architect interior: Google Sketch up and related software for developing exterior and interior surfaces and spaces and creating walk throughs using camera, light and assigning materials.

a) Introduction to basic features.

b) Introduction to modeling.

c) Introduction to materials and mapping.

d) lntroduction of lighting. (Lighting effects & Shadow maps)

EXERCISE

1. Make Basic forms
2. Make a Door
3. Make a Window
4. Make a Chair
5. Make a Double Bed
6. Make a Dining Table
7. Make a Centre table
8. Make a room having door and window
9. Make a Wardrobe
10. Design a 3 Seater sofa
11. Design a Crockery unit
12. Design a Kitchen cabinets
13. Design a TV cabinet

14. Design a kid's bedroom

15. Design a kitchen garden

Note:

1. There will be only a practical exam. No theory paper of this subject.
2. Make a file on A-4 size paper.
3. 5 days workshop to be conducted on Revit.

INTERIOR DESIGN – III

L	T	P
2	-	10

Subject Code : 134005

RATIONALE

This subject introduces students to the field of restaurant and bar design. This is a studio based design project introducing issues and vocabulary specific to this area of design discipline.

DETAILED CONTENTS

1. To understand what is a restaurant discuss with the students the primary Objectives to any restaurant to sell food. Discuss various aspects which differentiate one Restaurant to another in terms of decor, Quality, client profile, location Discuss various method employed by various restaurants to make the place more Welcoming and convenient to clients.

2. To study various types of restaurants: List the various types of restaurants
   a) Speciality restaurant chain based
   b) Economical
   c) Luxury
   d) Theme based: Theme for interior, Theme for food
   e) Fast food self service restaurant
   f) Luxury restaurant and bars
   g) Coffee bars / Café / Bistro

Elements of Restaurant and Bar Design

3. Understanding the elements of restaurant and bar design. The elements of restaurant and bars design
   a) Space
   b) Spatial organization
   c) Restaurant and bar layout depending: Types of sitting, Quality of sitting, Layouts
   d) Lighting
   e) Menu cards and Graphics

Kitchens and Related Service Area

4. Understanding the importance of Service areas in Restaurant and Bar. Discuss how the percentage of service area is important for the success of any business especially restaurant.
   a) Design and location of kitchen
   b) Storage wet and dry
   c) Generator room
   d) Dumb waiter/ service lift and staircase
   e) Garbage disposal
   f) Display units if any

Design of a Concept based Restaurant and Bar

5. To do case studies of various restaurants and to prepare reports. Evaluating these spaces on the bases of the points studied in the previous units. Students shall carry out detailed case studies of various categories of the stores such as mentioned in units.

   Comprehensive report must be prepared by students in groups elaborating upon the positive and negative aspects of the design
6. To work on the concept of the proposed storey restaurant in the given parameters (select any existing double storey building and choose a theme for interior from the following viz, **Rajasthani or Punjabi or Gujrati or Gaon.** Now develop a design baesd on certain concepts of interiors, food, layout etc.
7. Layout plans to work on the design of the restaurant based on the concept finalized:
   a. Area differentiation
   b. Furniture layout
8. Detailing to do in-depth detailing on the layout design finalized above:
   a) Entrance
   b) Furniture
   c) Wall treatment
   d) Window treatment
   e) Lighting
   f) Ceiling and flooring detailing

Final drawings

9. To present the final drawing in A2 size and convenient scale. The presentation will include the following presentation drawing colored and rendering.
   a) Layout plans

b) Section with wall and window treatment details

c) Perspective view

d) Furniture detail

e) Flooring layout

f) Ceiling layout

g)Lighting layout

h)Sample board

10. Project report with model.

(Minimum 15 sheets are to be made)

Note:

1. No theory in this paper. Relevant theory should be taught along with studio work.
2. Site visits and market survey will be carried out.
3. Submission should be taken in four stages on pre defined dates.
   a) Stage one: Case-Study
   b) Stage two: Concept finalization
   c) Stage three: Final drawings
   d) Stage four: Model with rendered drawings.

RECOMMENDED BOOKS

1. Times saver standard
2. Bar and Restaurant interior structure by Lorraine Farrell
3. Cafes and Restaurant by Laura Andreini
4. Magazines and Journals

DISPLAY AND LIGHTING SYSTEM

L	T	P
5	-	3

Subject Code : 134003

RATIONALE

This course aims at developing skills in students to design and display various objects. The course also aims to introduce the art and technology of lighting and explores the use Of lighting as a design element in the interior environment. The theory of light, light sources, and their spectral quality, light distribution. Colour perception, colour classification systems, surface colour, colour rendering, formal aesthetics of light and colour, perceived magnitude, spaciousness and quality of space under different light sources.

Students will learn to analyse interior lighting installations, calculate lighting levels for interiors, select appropriate light fixtures and prepare a lighting plan based on one of their studio projects.

DETAILED CONTENTS

DISPLAY SYSTEM

1. Introduction, Principles of display(to catch the eye of viewers, to impress the passersby, To transfer his interest to the objects displayed, to increase the sale of product), Types of display (window display, Mobile display, Portable display, Mass production display, Island display, Furniture display, Counter display, Pillar display, shelves and Wall floor display, Special occasion display viz, X-Mas, New year, Diwali etc.), its importance and scope in the Modem world and in India. Difference between display and interior decoration. (05 Sheets)
2. Preparation of sketches showing different views of showroom, shop front and any other commercial display area. (02Sheets)

LIGHTING SYSTEM

1. Lighting Fundamentals: Introduction, Attributes of lighting, Design of lighting with the phenomenon of creating an atmospheric perception of warm or cool in a given space (Kelvins), Knowledge of a lamp's ability to correctly render specific pigment colorations (CRl), Luminaries and their interaction, Characteristics of colour and how to achieve best colour rendition in a particular light, Various parts of a light fixture and their role in both incandescent and fluorescent lights, Ability to relate colour to light and vice – versa.
2. Types of Light: Natural light, General lighting, Accent lighting, Task lighting.

NOTE- Students will collect examples of various types of lighting schemes & fixtures etc. from magazines and publications.

3. Light Fittings and Fixtures: Introduction, Types of fixtures bulbs, tungsten, halogen, fluorescent, dimmers), Types of fittings (Pendant lights, wall lights, up lighters, down lighters, wall washers, track), Difference between fixtures and fittings, The effect of shape and dimensions of a fixture or fitting on the types of lighting effect produced.
4. Lighting Schemes for Various Areas:
   a) To study lighting schemes for a residential spaces viz., Living room, Kitchen, Bathroom, Bedroom, Passage.
   b) To study the lighting schemes for commercial spaces viz., Office, Restaurant, Showrooms.
   c) To study outdoor and security lighting: Special requirement of this type of lighting, Type of fixtures used and main requirement is illumination and not the decoration

NOTE- The students are required to do number of market surveys and case study to understand the various types of fixtures and fittings available and their application in interiors of residential and commercial spaces.

REFERENCE BOOK

1. Lighting design, source book- Randall Whitehead
2. Light right- M.K. Halpeth, T. Senthil Kumar, G.Hari Kumardesign
3. Concepts of lighting, Lighting design in architecture- Torquil Barker.