

**B. Voc.**  
**In**  
**Building Construction Technology**  
**Scheme and Syllabus**

  
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**TITLE OF THE PROGRAMME**  
**BACHELOR OF VOCATION IN BUILDING CONSTRUCTION**  
**TECHNOLOGY**

**Preamble**

Building Construction activity is an integral part of nation's infrastructure, urban and industrial development. Construction industry is vital in socio-economic development and also generates substantial employment and provides a growth impetus to other sectors through backward and forward linkages. Building Construction Technology deals with design, construction, execution work, erection work and maintenance of hospitals, schools, townships, offices, houses and other buildings; urban infrastructure (including water supply, sewerage, drainage). Requirement of skilled personnel/ technicians in construction engineering works is growing day to day. Construction industries, public & private entrepreneurs, government organizations, builders, Real Estate owners are in need of technicians in this area. Hence this course has several advantages that will enables student to get engaged in building construction area of civil engineering.

**Objectives of course**

The B. Voc in Building Construction Technology aims at providing the expertise needed to effectively lead a building construction project and work with industry. It aims at providing over all technical and execution proficiency, the industrial working exposure, and the entrepreneurial skills for success in this rapidly-evolving industry.

The curriculum teaches you how to integrate multiple professional requirements for bringing building construction projects to successful execution, completion, including building construction, planning and drafting, estimating, cost control, new technologies, methods of surveying & advanced surveying, concrete technology, geo-technology, structural design, CAD, water supply management & sanitation, project planning, erecting plans-layout, scheduling & negotiation, and labour management etc. The coursework aims at managing various types of contractual relationships governing the owner, the contractor, subcontractors, consultants, labour and architects, as well as the essential skills of bidding, negotiating, handling disputes and claims. To train the students to gear up to employment opportunities in Building construction

  
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industry in Private & Public sectors, state and central public works departments and other Government undertakings, Self-employment ventures/ Civil Engineering Contractor etc.

## Program Structure

The course titled as B.Voc. (Building Construction Technology) is proposed with concise modular structure of syllabus that gives exit option after every year with employable skill at the end of each module. The three modules are as under:

Award	Duration	Corresponding NSQF level
Diploma	1 year	5
Advanced Diploma	2 years	6
B. Voc. Degree	3 years	7

All students should undergo concise modular structure program of 180 hrs duration in each semester for first two semesters along with **level-5 regular course** (i.e. first year of B.Voc). The credits earned are of qualifying nature and should be completed within four semesters (2 years) for obtaining Diploma/Advanced Diploma/ B.Voc Degree, as a pre-requisite.

## Program Outcomes

### 1. Diploma in Building Construction Technology

**Outcome:** Student shall have acquired adequate skills to assist and work as drafts man, supervisor and site engineer. After successful completion of this module and some additional practice the student should have attained

- Skill in preparing, reading and interpreting drawing pertaining to Civil engineering and allied works
- Understanding the use of various types of construction materials, their characteristics and suitability in construction sector
- Competencies in estimating and costing and contracting of civil works including measurement and billing

- Knowledge of appropriate attitude and values and awareness regarding ecology and environment engineering
- Skill in using computers in the field of Building Construction work

## **2. Advanced Diploma in Building Construction Technology**

**Outcome:** Student shall have acquired adequate skills to work as drafts man, supervisor and site engineer. Student can work as an assistant to mix designer, surveyor, project manager and design engineer. After successful completion of this module and some additional practice the student should have attained

- Understanding of concepts, principles and practices in making concrete and concreting operations for different types of civil works
- Analytical ability and understanding of behaviour of various types of soils and their uses for civil works
- Ability to perform surveying works for various construction works & exposure to various digital equipment
- Analysis and design of simple structural elements in concrete and steel and skill of preparing and reading detailed structural drawings
- Awareness regarding facilities and support system to promote entrepreneurship development
- Ability to use the knowledge of building services in preparing computer based drawings as per requirements

## **3. Bachelor of Vocation in Building Construction Technology**

**Outcome:** Student shall have acquired adequate skills to work as surveyor, drafts man, supervisor, site engineer, mix designer, Technical Report writer, project manager and design engineer. Further it opens the gates to further vertical mobility in career. After successful completion of this module and some additional practice the student should be able to take up his own self-employment ventures/contracts/projects

- Ability to supervise various civil works such as buildings, industrial structures etc.

  
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- Application of knowledge of planning, scheduling, controlling and skill of advanced surveying in supervising various construction projects
- Skill in managing construction materials, equipment, manpower and cash flow
- Competencies in maintenance, repairs and upkeep of building
- Knowledge of principles of water supply and sanitary in building
- Rigorous training in enhancing communication skills, technical English and interpersonal relations and skills in communication
- Awareness regarding hazards, safety measures at construction site
- Awareness about Contract laws & regulation, Disaster Management, waste management
- Exposure to various computation skills such as Civil engineering design and drafting software
- Ability in preparing computer based drawings

  
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## **Preamble**


It has been a long felt necessity to align higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum, in an innovative and flexible manner while developing a holistic and well-groomed graduate. The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF (National Skills Qualifications Framework)

## **Programs**

Vocational, or skills-based, education is becoming more and more significant in today's perspective as industry expecting new employees to have all the practical skills they need to start work. Keeping in view the demands of the industry and to provide flexible options for students as desired by UGC the Deen Dayal Upadhyay KAUSHAL Kendra, Jamdoli Jaipur have launched Bachelor of Vocation courses in 2 sectors namely during academic year 2016-17.

1. Interior Design
2. Building Construction Technology

These programmes aim to build individual capacities and train persons with adequate employability skills. The programme structure attempts to blend appropriate technical knowledge and skills, personal and professional skills and substantive 'hands-on' and field / site experience required in the trade.

  
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## The program structure:

### Levels of Awards:

The certification levels will lead to Diploma/Advanced Diploma/B. Voc. Degree in one or more vocational areas and will be offered under the aegis of the University.

Award	Duration	Corresponding NSQF level
Diploma	1 year	5
Advanced Diploma	2 years	6
B. Voc. Degree	3 years	7

**Duration:** 6 Semesters (3 years). This three year full time programme is divided into six semesters, each of 15 weeks including assessment. In addition all students are expected to undergo industrial training / project work for 4-8 weeks every semester that may continue partly during summer / winter breaks.

**Eligibility:** Entry to First Year - 12<sup>th</sup> pass in any discipline;  
Lateral entry may be offered in the second year and third year of the programme to external candidates who have undertaken courses deemed to be equivalent to the 1<sup>st</sup> year and 2<sup>nd</sup> year programme respectively and are able to qualify the skill equivalency test organized by the college/institute offering the programme.

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## EXAMINATION SCHEME AND PATTERN

### CREDIT CALCULATION

The following formula is used for conversion of time into credit hours.

- One Credit would mean equivalent of 14- 15 periods of 60 minutes each for theory or 28- 30 hrs of workshops/labs;
- For industrial visit, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

### COURSE STRUCTURE

NSQF Level	Skill Component Credits	General Education Credits	Normal calendar duration	Exit Points / Awards
Year 3	36	24	Six Semesters	B.Voc.
Year 2	36	24	Four semesters	Advanced Diploma
Year 1	36	24	Two semesters	Diploma
<b>TOTAL</b>	<b>108</b>	<b>72</b>		

As per the UGC guidelines, there are multiple exit point for a candidate admitted in this course. If he/she is completing all the six semester successfully, he/she will get B. Voc degree in Building Construction Technology. If he/she is completing the first four semesters successfully, he/she will get an advanced diploma in Building Construction Technology. If he/she is completing the first two semesters he/she will get a diploma in Building Construction Technology.

### DISTRIBUTION OF MARKS

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
ONE	BCT-01	Basic Of Civil Construction	Skill	T	3	60	40	100
	BCT-02	Construction Materials & Application	Skill	T	3	60	40	100
	BCT-03	Construction Economics	Skill	T	2	60	40	100
	BCT-04	Management Theory & Organization Behavior	Skill	T	2	60	40	100
	OSL - 1	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BCT-05	General Education-I	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

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Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
TWO	BCT-06	Civil Auto CAD-I	Skill	T	2	60	40	100
	BCT-07	Basic Mathematics	Skill	T	3	60	40	100
	BCT-08	Structure	Skill	T	3	60	40	100
	BCT-09	Construction Personal Management	Skill	T	2	60	40	100
	OSL - 2	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BCT-10	General Education-II	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
THREE	BCT-11	Construction Marketing Management	Skill	T	2	60	40	100
	BCT-12	Construction Safety Management	Skill	T	2	60	40	100
	BCT-13	Civil AutoCAD-II	Skill	T	3	60	40	100
	BCT-14	Construction Materials & Application-II	Skill	T	3	60	40	100
	OSL - 3	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BCT-15	General Education-III	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
FOUR	BCT-16	Building Management System	Skill	T	1	60	40	100
	BCT-17	Civil Survey	Skill	T	4	60	40	100
	BCT-18	Construction Financial Accounting	Skill	T	2	60	40	100
	BCT-19	Advanced Construction Technology	Skill	T	3	60	40	100
	OSL - 4	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BCT-20	General Education-IV	General	T	12	60	40	100

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<b>TOTAL</b>	<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>
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Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
FIVE	BCT-21	Project Estimation And Cost Analysis	Skill	T	2	60	40	60
	BCT-22	Material Procurement & Store Management	Skill	T	2	60	40	60
	BCT-23	Infrastructure Development & Project Management	Skill	T	2	60	40	60
	BCT-24	Construction Quality Management	Skill	T	1	60	40	60
	OSL – 5	Onsite Learning / Project / Lab	Skill	P	11	60	40	60
	BCT-25	General Education-V	General	T	12	60	40	60
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
SIX	BCT-26	Construction & International Contracting	Skill	T	2	60	40	100
	BCT-27	Entrepreneurship Development Programme	Skill	T	1	60	40	100
	BCT-28	Project Management Technique	Skill	T	2	60	40	100
	BCT-29	Green Technology	Skill	T	1	60	40	100
	OSL – 6	Onsite Learning / Project / Lab	Skill	P	12	60	40	100
	BCT-30	General Education-VI	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

<b>GRAND TOTAL</b>	<b>180</b>	<b>2160</b>	<b>1440</b>	<b>3600</b>
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### EVALUATION / ASSESSMENT

There shall be Continuous Evaluation (CE) and End Semester Evaluation (ESE) for B. Voc (Building Construction Technology) course. CE is based on specific components viz., attendance, tests, assignments and seminars. The CE shall carry a weightage of 40 Per cent and ESE shall carry a weightage of 60 per cent.

#### 1. CONTINUOUS EVALUATION (CE)

  
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The CE component shall be of 40% weight distributed in three sub-components as: (i) Attendance – 10%, (ii) assignment / seminar – 10% and mid-course tests - 20%.

- **Attendance (10 Marks)**

The minimum number of hours of lectures, tutorials, seminars, or practicals which a student shall be required to attend for eligibility to appear at the end semester examination shall not be less than 75 per cent of the total number of lectures, tutorials, seminars or practical sessions. Internships, study tours and soft skill and personality development programmes are part of the course and students must attend in these activities to complete a semester.

- **Assignments/ Seminars (10 Marks)**

Each student shall be required to do one assignment for each course.

- **Mid-Course Tests (20 Marks)**

For each course there shall be at least two class tests during a semester. Grades for the test component in CE shall be awarded on the basis of the grades secured for the better of the two class tests.

## 2. END SEMESTER EVALUATION (ESE)

End Semester Examination of all the courses in all semesters shall be conducted. The duration of examination of all courses shall be 3 hours and 60 marks. The end semester examination of the design / project based courses shall be evaluated by viva-voce by expert(s)/ jury in which one will be external examiner.

- **Paper Pattern**

(1) A question paper will divide in three sections, named Section A, Section B and Section C.

(2) **Section A will be of 10 marks comprising of SIX very short answer questions or objective type questions of two marks each out of which the student may choose to answer ANY FIVE questions. Section B will of 20 marks comprising of FIVE short answer questions of five marks each out of which student may choose to answer any FOUR questions. Section C will be of 30 marks comprising of THREE long answer questions (application based) of 15 marks each out of which student may choose to answer any TWO questions.**

(3) The questions should be written both in English & Hindi languages but in case any discrepancy, English version will be followed.

3. In individual paper minimum 35% marks in ESE are required to clear a paper. However in aggregate, minimum 40% marks will be required to qualify the exam.
4. Wherever practical/lab exam are required, examination will be conducted by a panel of examiner(s) in which one will be external examiner.

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5. For progressive promotion from one semester to next semester, candidate will have to earn minimum 50% credits provided in that semester.
6. The revaluation in individual paper will be permitted as per University of Rajasthan norms.
7. The supplementary examination of each paper will be conducted by university as per University of Rajasthan norms. Maximum two additional attempts will be given to clear a paper. If a candidate fails in a paper first attempt chance will be given through supplementary examination. If he/she still fails to clear this paper in supplementary exam last chance will be given with main exam of corresponding semester. If he/she still fails to clear this paper in third attempt, he/she will have to repeat the complete semester.
8. Maximum duration for the course will be allowed as per University of Rajasthan norms.

### GRADING

Grading pattern will be followed using UGC Guidelines for B.Voc. on 10 point grading system given below:

### LETTER GRADE PERFORMANCE

RANGE	LETTER GRADE	GRADE POINT
93 and Above	O (Outstanding)	10
92-85	A <sup>+</sup> (Excellent)	9
84-75	A (Very Good)	8
74-65	B <sup>+</sup> (Good)	7
64-55	B (Above Average)	6
54-45	C (Average)	5
44-35	P (Pass)	4
Below 35	F (Fail)	0
	Ab (Absent)	0

**NOTE: In general for both the programmes guidelines issued by UGC as per NSQF (National Skill Qualification Framework) should be followed.**

  
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Below is the detailed structure for the three year (6 semesters) programme:

FIRST SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-01	Basic Of Civil Construction	3	0	0	3	
BCT-02	Construction Materials & Application	2	2	0	3	
BCT-03	Construction Economics	1	0	1	2	
BCT-04	Management Theory & Organization Behavior	1	0	0	2	
OSL - 1	Onsite Learning / Project / Lab	8			8	
SUB TOTAL		7	10	1	18	
GENERAL COMPONENT						
BCT-05	General Education-I	8	4	0	12	
TOTAL		15	14	1	30	

SECOND SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-06	Civil Auto CAD-I	2	2	0	2	
BCT-07	Basic Mathematics	3	0	0	3	
BCT-08	Structure	1	0	1	3	
BCT-09	Construction Personal Management	1	0	0	2	
OSL - 2	Onsite Learning / Project / Lab	8			8	
SUB TOTAL		7	10	1	18	
GENERAL COMPONENT						
BCT-10	General Education-II	8	4	0	12	
TOTAL		15	14	1	30	

THIRD SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-11	Construction Marketing Management	1	0	0	2	
BCT-12	Construction Safety Management	1	0	0	2	
BCT-13	Civil AutoCAD-II	2	2	0	3	
BCT-14	Construction Materials & Application-II	2	2	0	3	
OSL - 3	Onsite Learning / Project / Lab	8			8	
SUB TOTAL		6	12	0	18	
GENERAL COMPONENT						
BCT-15	General Education-III	8	4	0	12	
TOTAL		14	16	0	30	

FOURTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-16	Building Management System	1	0	0	1	
BCT-17	Civil Survey	2	2	0	4	
BCT-18	Construction Financial Accounting	1	0	1	2	
BCT-19	Advanced Construction Technology	2	0	0	3	
OSL - 4	Onsite Learning / Project / Lab	9			8	
SUB TOTAL		6	11	1	18	
GENERAL COMPONENT						
BCT-20	General Education-IV	8	4	0	12	
TOTAL		14	15	1	30	

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FIFTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-21	Project Estimation And Cost Analysis	2	2	0	2	
BCT-22	Material Procurement & Store Management	1	0	0	2	
BCT-23	Infrastructure Development & Project Management	1	0	0	2	
BCT-24	Construction Quality Management	1	0	1	1	
OSL - 5	Onsite Learning / Project / Lab	10			11	
SUB TOTAL		5	12	1	18	
GENERAL COMPONENT						
BCT-25	General Education-V	8	4	0	12	
TOTAL		13	16	1	30	

SIXTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BCT-26	Construction & International Contracting	1	0	1	2	
BCT-27	Entrepreneurship Development Programme	1	0	0	1	
BCT-28	Project Management Technique	1	0	1	2	
BCT-29	Green Technology	1	0	0	1	
OSL - 6	Onsite Learning / Project / Lab	12			12	
SUB TOTAL		4	12	2	18	
GENERAL COMPONENT						
BCT-30	General Education-VI	8	4	0	12	
TOTAL		12	16	2	30	

NOTE:- \* Any guideline issued by Sector Skill Council (SSC's) under NSQF will be included in the Curriculum by the college/institute with intimation to the Rajasthan University.

\*College/ Institute shall endeavour to invite distinguished experts to augment learning and assessment at all the levels as per program objectives.

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# FIRST SEMESTER

## BCT-01. BASICS OF CIVIL CONSTRUCTION

### OBJECTIVES -

- To inculcate the essentials of various Construction activities to the students.
- To provide the students an illustration of the significance of the Construction Profession in satisfying societal needs.

### CONTENTS -

- General introduction to Construction Technology - Introduction to types of buildings, Components of a building
- Introduction to the various terminology of building construction
- Introduction to planning of a building - Simple building plan (viz. 1/2/3 BHK )
- Basics of Surveying – Principles, Objectives, Horizontal measurements with tapes, Ranging; various types of surveying instruments
- Building construction – Foundations, Brick masonry, Roofs, Floors, Decorative finishes, Plastering, Paints and Painting.

### REFERENCE BOOKS:

Building Construction  
Building Construction  
Construction Technology

Bindra & Arora.  
B. C. Punmia  
B. L. Gupta (Hindi)

## BCT-02. CONSTRUCTION MATERIALS & APPLICATIONS


### OBJECTIVES -

- To provide the basic knowledge of various construction materials

### CONTENTS –

- Introduction to various construction materials and their application
  - ✓ Masonry materials – Stones and Bricks ; source, type and their physical properties
  - ✓ Binding materials – Lime and Cement ; type and their physical properties
  - ✓ Other materials – Sand and Aggregate ; classification & physical properties

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Engineering Materials  
Building Materials

Rangwala  
B. L. Gupta (Hindi)

### **BCT-03. CONSTRUCTION ECONOMICS**

#### **OBJECTIVES -**

- To enable the basic knowledge of quantities and their application

#### **CONTENTS -**

- Various terminology of economics
- Quantities and their units for the various building component
- Basic market rate of materials used in building construction
- Approximate cost of materials

#### **REFERENCE BOOKS:**

Estimating and Costing  
Estimating and Costing

B. N. Dutta (English & Hindi)  
Rangwala

### **BCT-04. MANAGEMENT THEORY & ORGANIZATION BEHAVIOR**

#### **OBJECTIVES -**

- The objective of this paper is to enable the students to understand the multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

#### **CONTENTS -**

- Terms, Definitions, Concept and Techniques
- Motivation in organizations
- Evolution of management Thought
- Leadership in organizations

#### **REFERENCE BOOKS:**

Organization Behavior

P. Robbins

### **BCT-05. GENERAL EDUCATION-I**

#### **OBJECTIVES -**

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- To inculcate in group learning and improve communication skills.

## CONTENTS –

- Health and Physical Education – I Credit- 1
- Soft Skill Credit- 8
  - ✓ English Fluency Development-I
  - ✓ Building Self Confidence-I
  - ✓ Communication Skills-I
  - ✓ Attitude Building-I
  - ✓ Presentation Skills-I
- Information and Communication Technology: Credit- 3
  - ✓ Computer: An Introduction
  - ✓ Generation of Computers & Types : PC, PC/XT, PC/AT, Main Frame, Super, Lap Top, Pam Top
  - ✓ Data Representation:
    - Bit, Nibble, Byte, Word
    - Number System : Decimal, Binary, Hexadecimal & their Conversions
    - Arithmetic Operations (Addition, Subtraction using Binary Number System)
  - ✓ Idea of:
    - Hardware and Software
    - Firmware, Free ware and Human ware
  - ✓ Computer Languages and Translators:
    - Machine and Assembly
    - Translators: Assembler, Interpreter, Compiler
  - ✓ Introduction to Computer:
    - Central Processing Unit (CPU)
    - Input/ Out Devices : Keyboard, Mouse (Optical), Digitizer, Scanner, Web Camera, Monitor (CRT, TFT) , Printers, Plotters, Bar Code Reader
    - Secondary Storage Devices : Floppy, Hard Disk, CD, DVD, Flash Drive
    - Block Diagram Showing Interconnection of Computer Parts

## OSL-01. ONSITE LEARNING / PROJECT / LAB

- Field Test of Below Materials
  - ✓ Cement

  
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- ✓ Sand
- ✓ Aggregates
- ✓ Bricks
- Setting out of building plan
- Various types of the construction equipment
- Basic engineering drawings
- Types of brick bonds
- Field Visit & Training (Min. 20 Days)

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## SECOND SEMESTER

### BCT-06. CIVIL AUTO CAD-I

#### OBJECTIVES –

- To impart basic skills of computer based engineering drawing using AutoCAD

#### CONTENTS -

- Getting Started with AutoCAD
- Basic Drawings & Editing Commands
- Drawing Precision in AutoCAD
- Making Changes in Drawing

#### REFERENCE BOOKS:

Mastering AutoCAD 2009

AutoCAD E-Book

AutoCAD 2007: for Engineers & Designers

George Omura

Autodesk

Sham Tickoo, Deepak Maini

### BCT-07. BASIC MATHEMATICS

#### OBJECTIVES –

- Use mathematics as a tool to analyze data and make informed decision in day to day professional work.

#### CONTENTS -

- Relationship between fractions, decimals and percents.
- Simple Interest and Compound Interest.
- Mean, median, mode & range.
- Measure, Identify & draw angles, perpendicular & parallel lines, concepts of intersection, bisection, division of lines & angles.
- Formula for area and perimeter (Basic shapes).
- Formula for Volume and Surface area. (Simple Problems).

#### REFERENCE BOOKS:

Quantitative Aptitude

R. S. Aggarwal (English & Hindi)

  
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## **BCT-08. BUILDING STRUCTURE**

### **OBJECTIVES –**

- Understanding of fundamental structural elements and systems
- Ability to design a simple abstract structural system
- Ability to diagram simple abstract structural conditions
- Ability to discuss structure utilizing appropriate technical terminology

### **CONTENTS –**

- Introduction of various types of Building Structure
- Illustration various components of Building
  - ✓ Foundations,
  - ✓ Brick masonry,
  - ✓ Column,
  - ✓ Beam,
  - ✓ Slab.

### **REFERENCE BOOKS:**

Building Construction  
Estimating and Costing

Bindra & Arora.  
B. N. Dutta (English & Hindi)

## **BCT-09. CONSTRUCTION PERSONAL MANAGEMENT**

### **OBJECTIVES –**

- To study the various aspects of manpower management such as man power planning, organization, human relations, welfare and development methods in construction.

### **CONTENTS –**

- Human Relations And Organizational Behavior
- Organization– Organization Structure
- Manpower Planning

### **REFERENCE BOOKS:**

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## BCT-10. GENERAL EDUCATION-II

### OBJECTIVES –

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

### CONTENTS –

- Health and Physical Education Credit-1
- Human Values in Education- I Credit-2
  
- Soft Skill Credit-6
  - ✓ English Fluency Development-II
  - ✓ Building Self Confidence-II
  - ✓ Communication Skills-II
  - ✓ Attitude Building-II
  - ✓ Presentation Skills-II
  - ✓ Etiquettes & Manners-I
  - ✓ Negotiations Skills-I
  - ✓ Outer Grooming-I
  - ✓ Group Discussion-I
  - ✓ Interview Skills-I
  - ✓ Resume Building-I
  
- Information and Communication Technology Credit-3
  - ✓ Operating System :
    - Definition of Operating System (OS)
    - Types of OS
    - Single user -Multi user
    - Multi Programming and Multi Processing
  - ✓ Computer and Communication:
    - Need of Data Transmission
    - Data Transmission Media
    - Baud rate and Bandwidth, Digital and Analog Transmission Serial and Parallel Data Transfer, Protocols, MODEM.

➤ Networking of Computers : LAN, WAN, MAN, Blue tooth

**OSL-02. ONSITE LEARNING / PROJECT / LAB**

- Physical Test of Below Materials
  - ✓ Cement
  - ✓ Sand
  - ✓ Aggregates
  - ✓ Bricks
- Computer Laboratory
  - ✓ Basic of Auto CAD
- Field Visit & Training(Min. 20 Days)

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## THIRD SEMESTER

### BCT-11. CONSTRUCTION MARKETING MANAGEMENT

#### OBJECTIVES –

- Developing a construction marketing plan and strategy is critical to the success of any organization.
- The term "marketing" is often misunderstood and used incorrectly.
- Marketing is much more than selling or advertising.
- Marketing is the strategic plan that you develop for any organization that looks at any construction company's strengths and weaknesses.

#### CONTENTS –

- Marketing environment
- Marketing products for Construction
- Basics of Marketing
- Marketing Projects
- Marketing Real Estate

#### REFERENCE BOOKS:

Construction Marketing Ideas	Mark Buckshon
Construction Planning and Management	U. K. Srivastava

### BCT-12. CONSTRUCTION SAFETY MANAGEMENT

#### OBJECTIVES –

- To aware skilled person for any construction work to carry out the safety of labors.

#### CONTENTS –

- Construction Safety Management
- Safety in construction operations
- Safety in use of construction equipment
- Various safety equipment and gear used on site.
- First Aid on Site

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### REFERENCE BOOKS:

Industrial Safety

R. S. Rathore

### BCT-13. CIVIL AUTOCAD-II

#### OBJECTIVES –

- AutoCAD is software in civil engineering design and documentation to support Building Information Modeling (BIM) workflows.
- Improve project delivery, maintain more consistent data and respond faster to changes.
- Explore design options more efficiently and easily, analyze project performance and deliver consistent documentation for your projects.

#### CONTENTS –

- Correct Concept and sketch the arrangement of Bricks in different types of bond.
- Draw different Floors, various types of Arches and Lintels.
- Draw different types of Doors and Windows.
- Draw and Design Staircases.
- Prepare various Drawings of sanitary.

### REFERENCE BOOKS:

Mastering AutoCAD 2009

George Omura

AutoCAD E-Book

Autodesk

AutoCAD 2007: for Engineers & Designers

Sham Tickoo, Deepak Maini

### BCT-14. CONSTRUCTION MATERIALS & APPLICATION-II

#### OBJECTIVES –

- Construction materials are an important part of Civil (construction) Engineering.
- A person who belongs to Civil Engineering should have the thorough knowledge about different materials, useful for constructions. They should know the properties of different materials used in Civil Engineering works.
- The Student understands the varieties of materials, availability of materials, and suitability of particular materials for particular construction activity.

## CONTENTS –

- Introduction new construction materials and their application
  - ✓ Concrete: manufacturing, grade and physical properties
  - ✓ Use of steel in construction
  - ✓ Painting materials

## REFERENCE BOOKS:

Engineering Materials  
Building Materials

Rangwala  
B. L. Gupta (Hindi)

## BCT-15. GENERAL EDUCATION-III

### OBJECTIVES –

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

### CONTENTS –

- Health and Physical Education Credit-1
  
- Soft Skill Credit-8
  - ✓ English Fluency Development-III
  - ✓ Building Self Confidence-III
  - ✓ Communication Skills-III
  - ✓ Attitude Building-III
  - ✓ Presentation Skills-III
  
- Information and Communication Technology Credit-3
  - ✓ Information Concepts and Processing:
    - Definition of Data, Information
    - Need of Information
    - Quality of Information
    - Concepts of Data Security, Privacy, Protection
    - Computer Virus and their types
    - Scanning & Removing Virus

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University of ...  
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- ✓ Word processor
  - Introduction to MS-Word
  - Starting MS-Word
  - Special Features of MS-Word
  - Using Help
  - Opening Document, Typing and Editing
  - Copying, Inserting, Moving, Deleting
  - Copying from One Document to Others.
  - Undo, Redo, Spell Check, Find and Replace
  - Formatting
    - Characters and Fonts
    - Spacing
    - Removing Characters Formatting
  - Inserting Symbols, Paragraphs.
  - Page Setting, Header and Footer
  - Page Breaks, Borders and Shading
  - Print Preview and Printing
  - Tables and Columns
  - Mail Merge
  - Auto Text and Auto correct
  - Introduction to Macro

### **OSL-03. ONSITE LEARNING / PROJECT / LAB**

- Physical Test of Concrete
- Concrete Mix Design
- Testing Steel bar / Rebar
- Auto CAD Design
- Visit to RMC Plant
- Field Visit & Training (Min. 20 Days)

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## FOURTH SEMESTER

### BCT-16. BUILDING MANAGEMENT SYSTEM

#### OBJECTIVES –

- A Skilled person is responsible for the management of a construction job at site.
- He is required to instruct the workmen, arrange the materials, tools and plants before carrying out any construction activity.

#### CONTENTS –

- Introduction : Construction as an industry
- Basic concepts of Management
- Utilities and fixing of advanced automation system
- Different types of Management
- Construction management
  - ✓ Necessity
  - ✓ Resources - men power, machines, materials, money and management

#### REFERENCE BOOKS:

Project Planning and Control with PERT and CPM	B. C. Punmia
Construction Management & Accounts	Vazrani & Chandola

### BCT-17. CIVIL SURVEY

#### OBJECTIVES –

- A Skilled person is expected to be well aware of the surveying.
- He should be able to measure an irregular field and calculate its area practically.
- The important functions of Civil Works include the job of Setting out works.
- The development of the skills in types of surveys including leveling, contouring, Plane table along with Minor Instruments that the Skilled will normally be called upon to perform.

#### CONTENTS –

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- Chain surveying of small areas
- Measurements of bearing of lines
- Study and use of the component parts and handling of
  - ✓ Dumpy level
  - ✓ Tilting level
  - ✓ Auto level
- Study and use of parts of Theodolite-
  - ✓ Measurement of horizontal angle and vertical angle by Theodolite.
  - ✓ Traversing
- Study and setting of Total Station-

**REFERENCE BOOKS:**

Surveying-I	B. C. Punmia (English & Hindi)
Surveying-I	K. R. Arora
Surveying and Levelling	N. N. Basak

**BCT-18. CONSTRUCTION FINANCIAL ACCOUNTING**

**OBJECTIVES –**

- A skilled person able to calculate the various items and have record of construction items.
- He is also able to record of financial wages and accounting.

**CONTENTS –**

- Definitions and Requirement of a good wage system
- Methods of Wage Payment
- Wage incentives :
  - ✓ Types of Incentive
  - ✓ Incentive to Supervisor
- Construction Contracts :
  - ✓ Introduction
  - ✓ Proposal and agreements
  - ✓ Types of construction contracts.

**REFERENCE BOOKS:**

Estimating and Costing	B. N. Dutta (English & Hindi)
Estimating and Costing	Rangwala

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## **BCT-19. ADVANCED CONSTRUCTION TECHNOLOGY**

### **OBJECTIVES –**

- Building construction is an important job of skilled person. So he must acquire the knowledge of various parts of the building, their functions, importance and procedure of construction and maintenance.
- Building construction technology includes all the aspects of construction and importance of building work.

### **CONTENTS –**

- Introduction
- Structure
  - ✓ Types of Foundation
  - ✓ Types of Walls
  - ✓ Masonry; Brick Masonry and Stone Masonry
  - ✓ Types of floors
- Basics of:
  - ✓ Scaffolding, Shoring and Underpinning
  - ✓ Arches and Lintels
  - ✓ Doors and Windows
  - ✓ Stairs and Stair Cases
  - ✓ Roofs and Floors
  - ✓ Finishing of Buildings
  - ✓ Dampness and its Prevention

### **REFERENCE BOOKS:**

Building Construction  
Building Construction  
Construction Technology

Bindra & Arora.  
B. C. Punmia  
B. L. Gupta (Hindi)

## **BCT-20. GENERAL EDUCATION-IV**

### **OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.

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- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

## CONTENTS –

- Health and Physical Education Credit-1
- Human Values in Education- II Credit-2
- Soft Skill Credit-6
  - ✓ English Fluency Development-IV
  - ✓ Building Self Confidence-IV
  - ✓ Communication Skills-IV
  - ✓ Attitude Building-IV
  - ✓ Presentation Skills-IV
  - ✓ Etiquettes & Manners-II
  - ✓ Negotiations Skills-II
  - ✓ Outer Grooming-II
  - ✓ Group Discussion-II
  - ✓ Interview Skills-II
  - ✓ Resume Building-II
- Information and Communication Technology Credit-3
  - ✓ Internet:
    - Introduction to Internet
    - Bridges, Routers, Switch, Gate way
    - www, Web Site, URL
    - e-mail, e-Commerce
    - Web browsing, Web page
    - Introduction to Hyper text & HTML
  - ✓ Electronic Spread Sheet
    - Introduction to MS-Excel
    - Working with Spread Sheet
    - Editing the Worksheet
    - Worksheet Formatting
    - Formula Entering
    - Function Wizard
    - Saving and Printing Work Book
    - Analysis Tools
    - Data Tools
    - Charts
    - Linking Work Sheets

- Report Wizard
- Data Base Application
  - Data Base Components
  - Working with Database
  - Creating Excel Database
  - Adding Records using Data Form
  - Deleting Records using Menu Command
  - Deleting Records using Data Form
  - Editing Records
  - Finding Records based on Criteria

#### **OSL-04. ONSITE LEARNING / PROJECT / LAB**

- Building Models
  - ✓ Architectural
  - ✓ Structural
- Using Different Materials
  - ✓ Wood
  - ✓ Bamboo
  - ✓ Straw
- Chain surveying of small areas
- Study of compass
- Measurements of bearing of lines
- Study of the component parts and handling of
  - ✓ Dumpy level
  - ✓ Tilting level
  - ✓ Auto level.
- Measurement of horizontal angles and vertical angle by Theodolite.
- Measurement of horizontal angle, vertical angle, and distance by Total Station.
- Field Visit & Training. (Min. 30 Days)

  
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## FIFTH SEMESTER

### BCT-21. PROJECT ESTIMATION AND COST ANALYSIS

#### OBJECTIVES –

- A Skilled person should have the knowledge about to forecast the quantity of materials required for each item of work from the available drawings.
- The student should also know about specifications of each work, knowledge of earthwork calculation and preparing of abstract of cost.

#### CONTENTS –

- Purpose
- Importance of estimating
- Common items of works in civil engineering construction works
- Methods of taking out quantities
- Study of Basic Schedule of Rates (B.S.R.)
- Importance of specifications. Types of specification, writing general and detailed specifications for items of work in building construction mentioned in practical syllabus.

#### REFERENCE BOOKS:

Estimating and costing  
Estimating & Costing

B. N. Dutta (English & Hindi)  
Rangwala

### BCT-22. MATERIAL PROCUREMENT & STORE MANAGEMENT

#### OBJECTIVES –

- The Student understands the varieties of materials, availability of materials, and Suitability of particular materials for particular construction activity.
- They also should have knowledge of storage of materials without any deterioration.

#### CONTENTS –

- Store purchase
- Reserve of stock
- Dead stock
- Inventory management

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- Writing of Surplus and unserviceable stores
- Verification of stores
- Issue of materials from stock
- Tools and plants

**REFERENCE BOOKS:**

Estimating and Costing  
Estimating and Costing

B. N. Dutta (English & Hindi)  
Rangwala

**BCT-23. INFRASTRUCTURE DEVELOPMENT & PROJECT MANAGEMENT**

**OBJECTIVES –**

- Complex research and development projects can be managed effectively if the skilled person has the means to plan and control the schedules and costs of the work required to achieve their technical performance objectives.

**CONTENTS –**


Introduction to:

- Project Planning and Management
- Project Management
- Project Management context
- Phases in Project Management
  - ✓ Planning
  - ✓ Execution
  - ✓ Controlling
- Time management
- Cost management
- Quality management
- Risk management
- Human resources management
- Communication management

**REFERENCE BOOKS:**

Project Planning and Control with PERT and CPM  
Construction Management & Accounts

B. C. Punmia  
Vazrani & Chandola

  
B. C. Punmia, Vazrani & Chandola  
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## BCT-24. CONSTRUCTION QUALITY MANAGEMENT

### OBJECTIVES –

- To assure the quality of building construction work skilled person have knowledge of construction quality management.

### CONTENTS –

- Quality Assurance
- Quality Assurance Personnel
- Contractor Quality Control
- Quality Control Personnel

### REFERENCE BOOKS:

Construction Planning and Management  
Construction Management & Accounts

U. K. Srivastava  
Vazrani & Chandola

## BCT-25. GENERAL EDUCATION-V

### OBJECTIVES –

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

### CONTENTS –

- Health and Physical Education Credit-1
- Soft Skill Credit-8
  - ✓ English Fluency Development-V
  - ✓ Building Self Confidence-V
  - ✓ Communication Skills-V
  - ✓ Attitude Building-V
  - ✓ Presentation Skills-V
  - ✓ Etiquettes & Manners-III
  - ✓ Negotiations Skills-III
  - ✓ Outer Grooming-III

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- ✓ Group Discussion-III
- ✓ Interview Skills-III
- ✓ Resume Building-III

- Information and Communication Technology

Credit-3

- ✓ Power Point:
  - Introduction to Power Point
  - Creating a Presentation/Slide
  - Adding Animation in Slide
  - Running a Slide Show

### **OSL-05. ONSITE LEARNING / PROJECT / LAB**

- Computational Laboratory
  - ✓ Estimating & Costing
  - ✓ Design by Standard Software
- Field Visit & Training.(Min. 45 Days)

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## SIXTH SEMESTER

### BCT-26. CONSTRUCTION & INTERNATIONAL CONTRACTING

#### OBJECTIVES –

- This Subject covers in detail the process of estimation of a project , procedure related to tenders for their execution , contractual condition applicable , contract administration for successful execution and dispute resolution

#### CONTENTS –

- Tendering and contractual procedure
- Definition of contracts and its applicability
- Types of contract document forming a contract
- International contract

#### REFERENCE BOOKS:

Estimating and Costing  
Estimating and Costing

B. N. Dutta (English & Hindi)  
Rangwala

### BCT-27. ENTREPRENEURSHIP DEVELOPMENT PROGRAMME

#### OBJECTIVES –

- Entrepreneurship will introduce the students about how to set up a small-scale industry.
- The subject includes the procedure for how to select, proceed and start the SSI.

#### CONTENTS –

- Entrepreneurship and Entrepreneur
- Need of Employment and Opportunities.
- Essential Characteristics of a good Entrepreneur
- Industrial Policy.
- Classification of industries- Tiny, small scale , Medium scale, Large scale, Handicraft, Ancillary
- Type of industries- Production, Job based & Service

## REFERENCE BOOKS:

Industrial Entrepreneur and Management

O. P. Khanna

## BCT-28. PROJECT MANAGEMENT TECHNIQUE

### OBJECTIVES –

- A skilled person is responsible for the management of a construction job at site. He is required to instruct the workmen, arrange the materials, tools and plants before carrying out any construction activity.

### CONTENTS –

- Construction project planning
- Stages in planning
- Bar charts
- Introduction to Network
- Planning and scheduling by bar charts
- Limitations of bar chart
- PERT and CPM

## REFERENCE BOOKS:

Project Planning and Control with PERT and CPM  
Construction Management & Accounts

B. C. Punmia  
Vazrani & Chandola

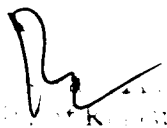
## BCT-29. GREEN TECHNOLOGY

### OBJECTIVES –

- Green building is the practice of increasing the efficiency with which building use resources – energy, water and materials – while reducing building impacts on human health and the environment, through better siting, design, construction, operation & maintenance.

### CONTENTS –

- Introduction and Fundamentals of energy
- Energy Production Systems
- Heating, Ventilation and Air- conditioning

  
O. P. Khanna  
Industrial Entrepreneur and Management

- Solar Energy and Conservation
- Primary energy use in
  - ✓ Residential buildings
  - ✓ Commercial buildings
  - ✓ Institutional buildings
  - ✓ Public buildings

**REFERENCE BOOKS:**

Green Buildings in India  
Sustainable Construction

Loga Raja, K.Suresh Kannan  
Charles J. Kibert

**BCT-30. GENERAL EDUCATION-VI**

**OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

**CONTENTS –**

- |  |          |
|--|----------|
| • Health and Physical Education            | Credit-1 |
| • Human Values in Education- III           | Credit-2 |
| • Soft Skill                               | Credit-6 |
| • Information and Communication Technology | Credit-3 |

**OSL-06. ONSITE LEARNING / PROJECT / LAB**

- AC of Building
  - ✓ AC - lecture hall/ Complex
  - ✓ AC – Public Building
- Field Visit & Training.(Min. 60 Days)

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**B. Voc.**

**In**

**Interior Design**

**Scheme and Syllabus**

  
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Title of the Programme: Bachelors of Vocation in Interior Design leading to degree "B. Voc. (Interior Design)"

Preamble: With the economic growth the demands for housing and commercial spaces has increased manifold. This has given steep rise to demand for competent professionals and skilled technical associates in building and interior industry. Increased awareness about quality of interior spaces in all spheres of activity has enhanced the demand for Interior Design Professionals. Private practices of Architects and Interior Designers, construction and interior decoration firms, furniture and furnishing houses, manufacturers and vendors of interior and building products all look for competent persons who can work at the cutting edge level in a professional manner.

This programme is designed to cater to demands of professionally trained human resource in the field of Interior Design.

The programme is highly relevant for all those who want to pursue a professional career in Interior Design practice, or in building industry, or in the field of marketing etc.

Aim: The programme aims to build individual capacities and train persons with adequate employability skills. The programme structure attempts to blend appropriate technical knowledge and skills, personal and professional skills and substantive 'hands-on' and field / site experience required in the trade.

Keeping in view the demands of the market and to provide flexible options for students the programme is designed in modular manner and allows entry and exit options at various levels. The learners will have flexibility to develop themselves according to their strengths and career interests.

Duration : 6 Semesters (3 years). This three year full time programme is divided into six semesters, each of 14 weeks including assessment. In addition all students are expected to undergo on job training / project work for 4-8 weeks every semester that may continue partly during summer / winter breaks.

Eligibility: Entry to First Year - 12<sup>th</sup> pass in any discipline;  
Lateral entry may be offered in the second year and third year of the programme to external candidates who have undertaken courses deemed to be equivalent to the 1<sup>st</sup> year and 2<sup>nd</sup> year programme respectively and are able to qualify the skill equivalency test organized by the college/institute offering the programme.

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### Programme Structure:

The course titled as B.Voc. (Interior Design) is proposed with a modular structure that gives exit option after every year with employable skill at the end of each module.

The three modules are as under:

#### Diploma in Interior Design (One Year)

Outcome: A person having adequate skills to work as an Assistant to a professional Interior designer.

After successful completion of this module and some additional practice the student should be equipped to:

- a. Make drawings after measurement of spaces and gather basic site information with help of notes and pictures
- b. Appreciate the role basic design elements to prepare well composed presentation drawings and office documents.
- c. Make simple presentation drawings for architectural and interior design works using computer soft wares
- d. Perform basic office functions - maintain record of drawings and files, record of drawings, keep account of routine expenses,
- e. Communicate pleasantly with visitors to office using correct terminology related to interior design work, make notes and write simple letters.
- f. Prepare and layouts of interiors of small spaces like apartments, houses, shops, small offices etc.

#### Advanced Diploma in Interior Design (Two Year)

Outcome: A person having adequate skills to work as 'Technical Assistant' to a professional Interior designer

After successful completion of this module and some additional practice the student should be equipped to:

- a. Take measurements of spaces and small buildings, document services and other site conditions sufficient enough to commence interior design work.
- b. Make presentation drawings including three dimensional views for architectural and interior design works using computer software.
- c. Appreciate the importance of arts and crafts and their role in interior design.
- d. Undertake functional space planning of medium scale interior spaces with due regard to basic services.
- e. Make basic working drawings of interior spaces
- f. Read drawings of services and structures and appreciate various functional requirements of the same for integration in interior designs and drawings
- g. Appreciate use of interior products, their availability in the market and sourcing from vendors.
- h. Communicate pleasantly in person and on phone with the clients / customers using appropriate vocabulary used by interior designers, write simple letters and emails and undertake basic secretarial work.

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B.Voc. (Interior Design) (Three Year)

Outcome: A person having skills to work as a Technical Associate to a professional Interior designer or work as a 'multi tasking' technical person in an organization serving interior design trade. .

After successful completion of this module and some additional practice the student should be equipped to:

- a. Prepare documents including measure drawings of site, site related information photographs etc sufficient enough to undertake design of interiors and small buildings.
- b. Make presentations including drawings and perspectives for computer aided presentations for the clients /customers.
- c. Make working drawings and coordinated services' drawings for site execution.
- d. Assist in preparation of bill of quantities, measurement of executed interior works and its billing
- e. Coordinate and supervise implementation of designs on site as per drawings and specifications and report basic defects.
- f. Appreciate use of interior products, their availability in the market and sourcing from vendors.
- g. Prepare basic interior designs of small and medium scale interior spaces like houses, apartments, commercial spaces, exhibition and shop displays, etc with due regard to aesthetics and basic services.
- h. List and coordinate procurement of modular furniture, interior fit-outs, exhibition stalls etc.
- i. Support running and management of a small business enterprise and design practice.

  
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## EXAMINATION SCHEME AND PATTERN

### CREDIT CALCULATION

The following formula is used for conversion of time into credit hours.

- One Credit would mean equivalent of 14- 15 periods of 60 minutes each for theory or 28- 30 hrs of workshops/labs;
- For industrial visit, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;
- For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

### COURSE STRUCTURE

NSQF Level	Skill Component Credits	General Education Credits	Normal calendar duration	Exit Points / Awards
Year 3	36	24	Six Semesters	B Voc
Year 2	36	24	Four semesters	Advanced Diploma
Year 1	36	24	Two semesters	Diploma
<b>TOTAL</b>	<b>108</b>	<b>72</b>		

As per the UGC guidelines, there are multiple exit point for a candidate admitted in this course. If he/she is completing all the six semester successfully, he/she will get B. Voc degree in Interior Designing. If he/she is completing the first four semesters successfully, he/she will get an advanced diploma in Interior Designing. If he/she is completing the first two semesters he/she will get a diploma in Interior Designing.

### DISTRIBUTION OF MARKS

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
ONE	BID-01	Basic Mathematics	Skill	T	3	60	40	100
	BID-02	Introduction to Design and Arts	Skill	T	3	60	40	100
	BID-03	Introduction to Building Materials & Construction	Skill	T	2	60	40	100
	BID-04	Architectural & Interior Drawing – 1	Skill	T	2	60	40	100

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	OSL - 1	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BID-05	General Education-I	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/ Skill	Theory/ Practical	Credit	Marks ESE	Marks CE	Total Marks
TWO	BID-06	Measure Drawing of Spaces & Buildings	Skill	T	2	60	40	100
	BID-07	Interior Studio - 1	Skill	T	3	60	40	100
	BID-08	Architectural & Interior Drawing - 2	Skill	T	3	60	40	100
	BID-09	Basics of Office Management	Skill	T	2	60	40	100
	OSL - 2	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BID-10	General Education-II	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/ Skill	Theory/ Practical	Credit	Marks ESE	Marks CE	Total Marks
THREE	BID-11	Computer Applications for Drawings and Graphics	Skill	T	2	60	40	100
	BID-12	Materials & Products for building interiors - 1	Skill	T	2	60	40	100
	BID-13	Interior Studio - 2	Skill	T	3	60	40	100
	BID-14	Introduction to Specifications	Skill	T	3	60	40	100
	OSL - 3	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BID-15	General Education-III	General	T	12	60	40	100

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<b>TOTAL</b>	<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>
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Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
FOUR	BID-16	Computer Applications for Drawings and Graphics (Advanced Course)	Skill	T	1	60	40	100
	BID-17	Traditional & Contemporary Interiors, Arts & its Appreciation	Skill	T	4	60	40	100
	BID-18	Basics of Estimation, Costing & Quantity Surveying	Skill	T	2	60	40	100
	BID-19	Activity Sequencing and Check List for Interior Works	Skill	T	3	60	40	100
	OSL - 4	Onsite Learning / Project / Lab	Skill	P	8	60	40	100
	BID-20	General Education-IV	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/Skill	Theory/Practical	Credit	Marks ESE	Marks CE	Total Marks
FIVE	BID-21	Supervisory Skills	Skill	T	2	60	40	100
	BID-22	Interior Design Studio - 2	Skill	T	2	60	40	100
	BID-23	Preparing Bill of Quantities	Skill	T	2	60	40	100
	BID-24	Managing Small Business Enterprise	Skill	T	1	60	40	100
	OSL - 5	Onsite Learning / Project / Lab	Skill	P	11	60	40	100

	BID-25	General Education-V	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

Sem.	Code No	Subject	General/ Skill	Theory/ Practical	Credit	Marks	Marks	Total Marks
						ESE	CE	
SIX	BID-26	Health, Safety & Environment (Laws & Regulations in construction industry)	Skill	T	2	60	40	100
	BID-27	Design Project Work	Skill	T	1	60	40	100
	BID-28	Measurement & Billing.	Skill	T	2	60	40	100
	BID-29	Professional Behavior, Etiquettes and Ethics	Skill	T	1	60	40	100
	OSL - 6	Onsite Learning / Project / Lab	Skill	P	12	60	40	100
	BID-30	General Education-VI	General	T	12	60	40	100
<b>TOTAL</b>					<b>30</b>	<b>360</b>	<b>240</b>	<b>600</b>

<b>GRAND TOTAL</b>					<b>180</b>	<b>2160</b>	<b>1440</b>	<b>3600</b>
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### EVALUATION / ASSESSMENT

There shall be Continuous Evaluation (CE) and End Semester Evaluation (ESE) for B. Voc (Building Construction Technology) course. CE is based on specific components viz., attendance, tests, assignments and seminars. The CE shall carry a weightage of 40 Per cent and ESE shall carry a weightage of 60 per cent.

#### 1. CONTINUOUS EVALUATION (CE)

The CE component shall be of 40% weight distributed in three sub-component as: (i) Attendance – 10%, (ii) assignment / seminar -- 10% and mid-course tests - 20%.

- Attendance (10 Marks)

  
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The minimum number of hours of lectures, tutorials, seminars, or practicals which a student shall be required to attend for eligibility to appear at the end semester examination shall not be less than 75 per cent of the total number of lectures, tutorials, seminars or practical sessions. Internships, study tours and soft skill and personality development programmes are part of the course and students must attend in these activities to complete a semester.

- **Assignments/ Seminars (10 Marks)**

Each student shall be required to do one assignment for each course.

- **Mid-Course Tests (20 Marks)**


For each course there shall be at least two class tests during a semester. Grades for the test component in CE shall be awarded on the basis of the grades secured for the better of the two class tests.

## 2. END SEMESTER EVALUATION (ESE)

End Semester Examination of all the courses in all semesters shall be conducted. The duration of examination of all courses shall be 3 hours and 60 marks. The end semester examination of the design / project based courses shall be evaluated by viva-voce by expert(s)/ jury in which one will be external examiner.

- **Paper Pattern**

- (1) A question paper will divide in three sections, named Section A, Section B and Section C.
  - (2) Section A will be of 10 marks comprising of SIX very short answer questions or objective type questions of two marks each out of which the student may choose to answer ANY FIVE questions. Section B will of 20 marks comprising of FIVE short answer questions of five marks each out of which student may choose to answer any FOUR questions. Section C will be of 30 marks comprising of THREE long answer questions (application based) of 15 marks each out of which student may choose to answer any TWO questions.
  - (3) The questions should be written both in English & Hindi languages but in case any discrepancy, English version will be followed.
3. In individual paper minimum 35% marks in ESE are required to clear a paper. However in aggregate, minimum 40% marks will be required to qualify the exam.
  4. Wherever practical/lab exam are required, examination will be conducted by a panel of examiner(s) in which one will be external examiner.
  5. For progressive promotion from one semester to next semester, candidate will have to earn minimum 50% credits provided in that semester.
  6. The revaluation in individual paper will be permitted as per University of Rajasthan norms. The supplementary examination of each paper will be conducted by university as per University of Rajasthan norms. Maximum two additional attempts will be given to clear a

  
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paper. If a candidate fails in a paper first attempt chance will be given through supplementary examination. If he/she still fails to clear this paper in supplementary exam last chance will be given with main exam of corresponding semester. If he/she still fails to clear this paper in third attempt, he/she will have to repeat the complete semester.

8. Maximum duration for the course will be allowed as per University of Rajasthan norms.

### GRADING

Grading pattern will be followed using UGC Guidelines for B.Voc. on 10 point grading system given below:

### LETTER GRADE PERFORMANCE

RANGE	LETTER GRADE	GRADE POINT
93 and Above	O (Outstanding)	10
92-85	A <sup>+</sup> (Excellent)	9
84-75	A (Very Good)	8
74-65	B <sup>+</sup> (Good)	7
64-55	B (Above Average)	6
54-45	C (Average)	5
44-35	P (Pass)	4
Below 35	F (Fail)	0
	Ab (Absent)	0

**NOTE: In general for both the programmes guidelines issued by UGC as per NSQF (National Skill Qualification Framework) should be followed.**

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Below is the detailed structure for the three year (6 semesters) programme:

FIRST SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-01	Basic Mathematics	3	0	0	3	
BID-02	Introduction to Design and Arts	2	2	0	3	
BID-03	Introduction to Building Materials & Construction	1	0	1	2	
BID-04	Architectural & Interior Drawing – 1	1	0	0	2	
OSL - 1	Onsite Learning / Project / Lab	8			8	
<b>SUB TOTAL</b>		7	10	1	18	
GENERAL COMPONENT						
BID-05	General Education-I	8	4	0	12	
<b>TOTAL</b>		15	14	1	30	

SECOND SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-06	Measure Drawing of Spaces & Buildings	2	2	0	2	
BID-07	Interior Studio – 1	3	0	0	3	
BID-08	Architectural & Interior Drawing – 2	1	0	1	3	
BID-09	Basics of Office Management	1	0	0	2	
OSL – 2	Onsite Learning / Project / Lab	8			8	
<b>SUB TOTAL</b>		7	10	1	18	
GENERAL COMPONENT						
BID-10	General Education-II	8	4	0	12	
<b>TOTAL</b>		15	14	1	30	

THIRD SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-11	Computer Applications for Drawings and Graphics	1	0	0	2	
BID-12	Materials & Products for building interiors - 1	1	0	0	2	
BID-13	Interior Studio - 2	2	2	0	3	
BID-14	Introduction to Specifications	2	2	0	3	
CSL - 3	Onsite Learning / Project / Lab	8			8	
<b>SUB TOTAL</b>		<b>6</b>	<b>12</b>	<b>0</b>	<b>18</b>	
GENERAL COMPONENT						
BID-15	General Education-III	8	4	0	12	
<b>TOTAL</b>		<b>14</b>	<b>16</b>	<b>0</b>	<b>30</b>	

FOURTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-16	Computer Applications for Drawings and Graphics (Advanced Course)	1	0	0	1	
BID-17	Traditional & Contemporary Interiors, Arts & its Appreciation	2	2	0	4	
BID-18	Basics of Estimation, Costing & Quantity Surveying	1	0	1	2	
BID-19	Activity Sequencing and Check List for Interior Works	2	0	0	3	
OSL - 4	Onsite Learning / Project / Lab	9			8	
<b>SUB TOTAL</b>		<b>6</b>	<b>11</b>	<b>1</b>	<b>18</b>	
GENERAL COMPONENT						
BID-20	General Education-IV	8	4	0	12	
<b>TOTAL</b>		<b>14</b>	<b>15</b>	<b>1</b>	<b>30</b>	

  
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FIFTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-21	Supervisory Skills	2	2	0	2	
BID-22	Interior Design Studio – 2	1	0	0	2	
BID-23	Preparing Bill of Quantities	1	0	0	2	
BID-24	Managing Small Business Enterprise	1	0	1	1	
OSL – 5	Onsite Learning / Project / Lab	10			11	
SUB TOTAL		5	12	1	18	
GENERAL COMPONENT						
BID-25	General Education-V	8	4	0	12	
TOTAL		13	16	1	30	

SIXTH SEMESTER						
COURSE NO.	COURSES	No. of Contact Hours Per Week			CREDITS	REMARKS
		L	P	T		
SKILL COMPONENT						
BID-26	Health, Safety & Environment (Laws & Regulations in construction industry)	1	0	1	2	
BID-27	Design Project Work	1	0	0	1	
BID-28	Measurement & Billing.	1	0	1	2	
BID-29	Professional Behavior, Etiquettes and Ethics	1	0	0	1	
OSL – 6	Onsite Learning / Project / Lab	12			12	
SUB TOTAL		4	12	2	18	
GENERAL COMPONENT						
BID-30	General Education-VI	8	4	0	12	
TOTAL		12	16	2	30	

NOTE: Any guideline issued by Sector Skill Council (SSC's) under NSQF will be included in the Curriculum by the College/institute with intimation to the Rajasthan University.

College/ Institute shall endeavour to invite distinguished experts to augment learning and/or assessment at all the levels as per program objectives.

**OBJECTIVES** – The student will be able to

Use mathematics as a tool to analyze data and make informed decision in day to day professional work.

Calculate area, distances, perimeters, volumes as applicable to measurements of various components of buildings and interiors.

Develop simple formulae used in CAD and Spreadsheet.

**CONTENTS** –

Relationship between fractions, decimals and percents.

Simple Interest and Compound Interest.

Mean, median, mode & range.

Measure, Identify & draw angles, perpendicular & parallel lines, concepts of intersection, bisection, division of lines & angles.

Formula for area and perimeter (Basic shapes).

Formula for Volume and Surface area. (Simple Problems).

**NOTE:** Instructor will develop exercises based on routine interior design office activities like calculating area of a space, carpet and super built up area, order quantities (like boxes of tiles required, area and weight of stone to be ordered etc.) Parallel attempt will be made to do these exercises on spread sheet in the separate course.

**OBJECTIVES** – At the end of this course student should be able to

Explain basic elements and principles of design

Prepare compositions in different mediums, colors and textures.

Describe and appreciate the aesthetical expression in different art forms.

**CONTENTS** –

Design – Meaning, Importance of Aesthetics,

Sensitization about 'Art' – Visual, Music, Dance

Design Components -

Shape

Texture

Color

Principles of design - Proportions, Symmetry, Repetition, Harmony, Contrast, Dominance, Balance, Dynamism, etc.

**Note:** Students will practice making 2 dimensional compositions on paper using

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different medium and physical models using different materials. Besides this qualities of a good visual designs shall be explained through photographs, artworks etc.

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B.VOC. (INTERIOR DESIGN) SEM – 1

BID-03 INTRODUCTION TO BUILDING  
MATERIALS & CONSTRUCTION

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OBJECTIVES – At the end of this course the student should be able to

- ☐ Describe the basic terminology used by architects and interior designers.
- ☐ Identify various elements of buildings and interiors in drawings and real life situations and describe them using professional terminology.
- ☐ Explain nature and application of building materials/products used in interiors.
- ☐ Identify regional vendors of basic interior products routinely used in interiors of homes and small shops.

CONTENTS –

- ☐ Terminology, nomenclature of various parts of building and interiors from foundation to roof. (The relevant terminology that shall be developed and demonstrated by the instructor through field visits and its representation shown on drawings)
- ☐ Introduction to products and materials used in interiors – Timber, Ply, Boards, Laminates, Tiles (floor and walls), Marble, Sandstone, POP,

Paints and Textiles.

- ☐ Introduction to products and materials used in construction of a house / small shop – Bricks(Clay and Fly-ash), Hollow blocks, Stones, Cement, Lime, Mortar, PVC and GI pipes, Concrete, Steel (Mild & Stainless), Aluminum.

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B.VOC. (INTERIOR DESIGN) SEM – 1

BID-04 ARCHITECTURAL &  
INTERIOR DRAWING -1


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OBJECTIVES – At the end of this course the student should be able to

- ☐ Prepare drawings by using drafting tools and accessories.
- ☐ Comprehend and Visualize geometric forms.
- ☐ Understand about Scale & Proportions.
- ☐ To initiate CAD.

CONTENTS –

- ☐ Introduction: –
  - ☐ Drawing Instruments and their uses.

  
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□ Sheet layout and sketching.

Lettering: Exercises in drafted and freehand architectural lettering.

Lines: Concept and types of lines. Line thickness. Dimension lines.

Scales.

Basic technical drawing: -

Division of lines and angles.

Drawing polygons.

Inscribing and circumscribing circles in polygons.

Orthographic Projections.

Projection of Points, Lines and Planes in different positions.

Simple 2D drawings using computer software. – Plans, elevations and sections of small spaces like a bedroom or a shop or alike.

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B.VOC. (INTERIOR DESIGN) SEM – 1

BID-05 GENERAL EDUCATION – 1


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**OBJECTIVES –**

- To inculcate in group learning and improve communication skills.

**CONTENTS –**

- Health and Physical Education – I Credit- 1
- Soft Skill Credit- 8
  - ✓ English Fluency Development-I
  - ✓ Building Self Confidence-I
  - ✓ Communication Skills-I
  - ✓ Attitude Building-I
  - ✓ Presentation Skills-I
- Information and Communication Technology: Credit- 3
  - ✓ Computer: An Introduction
  - ✓ Generation of Computers & Types : PC, PC/XT, PC/AT, Main Frame, Super, Lap Top, Pam Top
  - ✓ Data Representation:
    - Bit, Nibble, Byte, Word
    - Number System : Decimal, Binary, Hexadecimal & their Conversions
    - Arithmetic Operations (Addition, Subtraction using Binary Number System)
  - ✓ Idea of:
    - Hardware and Software
    - Firmware, Free ware and Human ware

  
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✓Computer Languages and Translators:

- Machine and Assembly
- Translators: Assembler, Interpreter, Compiler

✓Introduction to Computer:

- Central Processing Unit (CPU)
- Input/ Out Devices : Keyboard, Mouse (Optical), Digitizer, Scanner, Web Camera, Monitor (CRT, TFT) , Printers, Plotters, Bar Code Reader
- Secondary Storage Devices : Floppy, Hard Disk, CD, DVD, Flash Drive
- Block Diagram Showing Interconnection of Computer Parts

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B.VOC. (INTERIOR DESIGN) SEM – 1

OSL-01 ONSITE LEARNING SESSIONS –  
Exposure Visits to Traditional and Modern  
Interiors, Sites / Industry etc.

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OBJECTIVES –

- ☐ To provide practical understanding of traditional & contemporary interior elements.
- ☐ To understand the nature of interior works and various products used in contemporary designs.
- ☐ Appreciate functional aspects of spaces.
- ☐ To present the field studies in the form of sketches / photographs short reports.

This course will involve guided site visits to introduce various aspects of interiors.

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OBJECTIVES – At the end of this course the student should be able to

Take measurement of building/spaces, and to draw plans, elevations and sections of the same.

Prepare Scale drawings of the measured spaces using computer software.

Read survey maps and measure drawings.

CONTENTS –

Introduction to measurement tools and traditional methods - measuring tapes, gunia, plumb, water level, spirit level, magnetic compass. (exposure to 'laser' technology based instruments)

Using photographs for visual references.

Measure existing small houses, apartments, and interior spaces and prepare hand drawings and sketches (Nazari Naksha) on paper.

Prepare scale drawings of interior spaces and small houses with proper graphical representation of building components.

Reading survey maps and measure drawings of interior spaces.

OBJECTIVES – At the end of this course the student should be able to

Impart knowledge on the various materials while, highlighting the current trends and innovations in the usage of interior design materials.

Impart knowledge required for specifying appropriate materials for various spaces in interior design

Compare the different alternative materials suitable for given job.

Apply basic knowledge of human scale in designing small functional spaces.

CONTENTS -

Floor Finishes: Selection of Floor Finishes Factors affecting the selection (i.e. Base, Room Use, Degree of Comfort required, Maintenance, Cost, Appearance, Safety & Durability), Types of Flooring

Wall Finishes, Ceiling Materials, Roofing Materials, Paints & Varnishes.

Structural systems and their layout for a small building –  
Partitions.

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- False Ceiling.
- Panelling & Cladding.
- Mezzanine Floor.
- Structural system for urban interior spaces – malls, fair grounds, exhibition spaces, etc.

The studio exercise in this semester will focus on bldg. Standards & Site visits:

- Anthropometrics Studies:
  - Studies and introduction to human dimensions and functions,
  - Design and layout of personal space based on various human activities.
- Understanding of Form – shape, size, proportions
- Understanding of Installation Manuals, Codes etc.

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B.VOC. (INTERIOR DESIGN) SEM – 2

BID-08 ARCHITECTURAL &  
INTERIOR DRAWING - 2

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OBJECTIVES – At the end of this course the student should be able to

- Understand graphic treatment of two-dimensional drawings.
- Develop perception and presentation of simple architectural forms and buildings.
- Make models of different forms and sections of solids.
- Prepare 2 D drawings using CAD.

CONTENTS –

- Metric Drawing:-
  - Types, uses and advantages.
  - Isometric, Axonometric and Pictorial View.
  - Metric Drawing, Projection and their dimensioning.
  - Metric of plane figures composed of straight lines.
  - Metric of Circles.
  - Metric of simple and complex blocks.
- Section of Solids:-
  - Section plans, Sections, True shape of a section.
  - Intersection and Interpenetration of Solids.
- Development of Surfaces
- Model making.
- CAD– 2D.
  - Learn various 2D commands their function and application.
  - Understanding coordinate systems.
  - Working on layers.
  - Drawing plans, Elevations, Sections using Auto Cad.

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- Dimensioning Drawings.
- Connecting from one file format to another.
- Various file formats and their usefulness.
- Taking printouts using drawing plotter.

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**B.VOC. (INTERIOR DESIGN) SEM – 2**

**BID-09 BASICS OF OFFICE MANAGEMENT**

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- OBJECTIVES –** At the end of this course the student should be able to
- Understand the organizational structure of an Interior Designer's Office.
  - Manage Drawings & Office Records in a small office.
  - Perform basic book keeping works.
  - Perform office correspondence in the form of emails, letters & text messages.

**CONTENTS:**

- Office and its management.
- Structure of an Interior Designer's Office
- Managing Time
- Office Etiquettes and Work Ethics.
- Working in small groups / teams
- Maintaining Drawing and Office Records.
- Use of Computers and Accessories for Office Work.
- Basic Accounting and Book-keeping.
- Written Communication – simple letters, emails text messages and short reports.

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**B.VOC. (INTERIOR DESIGN) SEM – 2**

**BID-10 GENERAL EDUCATION – II**


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**OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

**CONTENTS –**

- Health and Physical Education Credit-1
- Human Values in Education- I Credit-2

  
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• Soft Skill

Credit-6

- ✓ English Fluency Development-II
- ✓ Building Self Confidence-II
- ✓ Communication Skills-II
- ✓ Attitude Building-II
- ✓ Presentation Skills-II
- ✓ Etiquettes & Manners-I
- ✓ Negotiations Skills-I
- ✓ Outer Grooming-I
- ✓ Group Discussion-I
- ✓ Interview Skills-I
- ✓ Resume Building-I

• Information and Communication Technology

Credit-3

- ✓ Operating System :
  - Definition of Operating System (OS)
  - Types of OS
  - Single user -Multi user
  - Multi Programming and Multi Processing
- ✓ Computer and Communication:
  - Need of Data Transmission
  - Data Transmission Media
  - Baud rate and Bandwidth, Digital and Analog Transmission Serial and Parallel Data Transfer, Protocols, MODEM.
  - Networking of Computers : LAN, WAN, MAN, Blue tooth

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B.VOC. (INTERIOR DESIGN) SEM – 2

OSL-02 ONSITE LEARNING SESSIONS –  
Introduction to Products & Services Related  
to Building Interiors.

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OBJECTIVES –

- To provide practical understanding of the Latest Products /Materials, available in the market.
- To expose students about application of products/materials on the basis of its functionality with the help of sites/industry visits.

This course will involve guided site visits to understand availability of interior products and comprehend basic services integral to simple interiors.

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OBJECTIVES – At the end of this course the students should be able to

- Use basic photo-editing software.
- Create basic 3 dimensional drawings using CAD.
- Connecting from one file format to another.
- Take printouts using a plotter.

CONTENTS –

- Introduction to few basic photo editing software's.
- Use basic applications of Adobe Photoshop to manipulate pictures and drawings.
- 2D to 3D conversion, perspective view.
- Understanding CAD 3D
  - Learn various 3D commands their function and application.
  - Understanding coordinate systems.
  - Working on layers.
  - Drawing 3D Model using different softwares.
  - Interface between different softwares.
  - Various file formats and their usefulness.
- Taking printouts using drawing plotter.

OBJECTIVES -

- To acquaint the students to building materials used in interior works.
- To familiarize the students with construction techniques for use of the above materials in building interiors.

CONTENTS –

- Building Materials for Interiors -
  - Materials related to False Ceiling, Partitions, Flooring, Acoustics etc.
  - Wood & wood products.
- Basics of Construction (Interiors) –
  - Reinforced Cement Concrete and Reinforced Brick Concrete: Types, Mixing, Curing, Water Cement Ratio, Qualities and Workability.
  - D.P.C: Introduction \ proof course, awareness about sources and

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effects of dampness,

□ BrickWork: Brick Terminology, Simple Bonds in Brick work and Details at junctions and Quoins.

□ StoneWork: Elementary Stone Masonry, Types of joints, Random, Square and Ashlars Stonework.

□ Openings in walls.

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B.VOC. (INTERIOR DESIGN) SEM – 3

BID-13 INTERIOR STUDIO -

2

OBJECTIVES – After completion of this course, the student should be able to -

- Demonstrate understanding of anthropometrics while preparing interior layouts.
- Prepare designs of cabinet work/furniture used in small spaces.
- Distinguish the ambiance required for different uses.
- Prepare interior layouts for small spaces with sensitivity to functionality and aesthetics.
- Prepare the sample boards for the interior design exercise.

CONTENTS -

- Basic concepts of ambiance (explained through photographs/site visits).
  - Design of cabinetwork for bedroom/drawing room/kitchen/clinic/kiosk etc.
  - Layout planning of a small house/apartment/shop/office/clinic or alike.
- (The course instructor is expected to develop in writing various design exercises giving exact deliverables & stages of submission)

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B.VOC. (INTERIOR DESIGN) SEM – 3

BID-14 INTRODUCTION TO SPECIFICATIONS

OBJECTIVES:

- To develop the understanding about the need of specifications for any interior project.
- To develop the skill to read & write the specifications for various interior works.

CONTENTS:

- Definition, Importance and scope of the subject.
- Correct form of writing specifications –avoiding ambiguity and conflicting statements.
- Uses of standard specification viz; drafted by C.P.W.D etc.
- Writing detailed specifications for basic interior works e.g. plastering,

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painting, false ceiling, paneling, flooring etc.  
Market Survey – Making of Sample Plates.

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B.VOC. (INTERIOR DESIGN) SEM – 3

BID-15 GENERAL EDUCATION-III

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**OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

**CONTENTS –**

- Health and Physical Education Credit-1
  
- Soft Skill Credit-8
  - ✓ English Fluency Development-III
  - ✓ Building Self Confidence-III
  - ✓ Communication Skills-III
  - ✓ Attitude Building-III
  - ✓ Presentation Skills-III
  
- Information and Communication Technology Credit-3
  - ✓ Information Concepts and Processing:
    - Definition of Data, Information
    - Need of Information
    - Quality of Information
    - Concepts of Data Security, Privacy, Protection
    - Computer Virus and their types
    - Scanning & Removing Virus
  - ✓ Word processor
    - Introduction to MS-Word
    - Starting MS-Word
    - Special Features of MS-Word
    - Using Help
    - Opening Document, Typing and Editing
    - Copying, Inserting, Moving, Deleting
    - Copying from One Document to Others.

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- Undo, Redo, Spell Check, Find and Replace
- Formatting
  - Characters and Fonts
  - Spacing
  - Removing Characters Formatting
- Inserting Symbols, Paragraphs.
- Page Setting, Header and Footer
- Page Breaks, Borders and Shading
- Print Preview and Printing
- Tables and Columns
- Mail Merge
- Auto Text and Auto correct
- Introduction to Macro

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**B.VOC. (INTERIOR DESIGN) SEM – 3**

**OSL-03 ONSITE LEARNING SESSIONS –**  
Focussed on art and artefacts and other interior products.

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**OBJECTIVES –**

- ☐ To provide practical understanding about the use of artifacts, paintings and Graphics in interior spaces
- ☐ To expose students about application of art in Interior Design by studying the works of traditional & contemporary interior designers with the help of site visits.
- ☐ To develop the photography skills among students to appreciate and document the traditional & contemporary works in India.

This course will involve guided site visits aims to familiarize students with traditional arts and crafts of India used in vernacular construction, historic buildings and contemporary designs in different climatic regions of India.

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- OBJECTIVES – At the end of this course the students should be able to
- Use basic photo-editing software.
  - Develop an understanding of software assisting in 3-Dimensional design
  - Explore computer modeling techniques using CAD and 3Ds Max
  - Connecting from one file format to another.
  - Take printouts using a plotter.

CONTENTS –

- Introduction to few basic photo editing softwares.
- Use basic applications of Adobe Photoshop, Coral Draw to manipulate pictures and drawings.
- 3D-Max: Understanding 3D, theory behind 3D modeling. Preparing for construction of 3D models. Construction of 3D surface models- extrusion, wire frame, creation of a shell, elaborates surfaces.
- Concepts behind solid modeling, composite solids creation and modification, solids display and inquiry.
- Introduction to materials, mapping and lighting - Assigning materials, Creating Transparencies, Mapping and mapping co-ordinates, Lighting effects, Shadow maps, rendering using active shades and depth of field.
- Taking printouts using drawing plotter.

OBJECTIVES:

- To familiarize students with traditional arts and crafts of India used in vernacular construction, historic buildings and contemporary designs in different climatic regions of India.

CONTENTS:

- Conceptual Framework of Interior Design specially Climate as a major consideration.
- Study of Vernacular Architecture.
- Interiors as an expression of Social customs.
- Study of Traditional and Contemporary life style and its influence in interior spaces
- Introduction to Heritage Interiors.

  
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**OBJECTIVES:**

- ☐ To initiate the students into theory and practice of estimation and quantity surveying.
- ☐ To familiarize students about the various codes for cost estimation like DSR, BSR etc.
- ☐ To impart knowledge about the use of computer softwares (excel, word) to prepare estimates.

**CONTENTS:**

- ☐ Estimates-types of estimates-approximate and detailed methods of estimating- plinth area method, carpet/floor area method cubic content method, approximate quantity method and number system, detail estimates-procedure of estimating taking out quantities schedule of rates.
- ☐ Estimation of various ordered quantities.
- ☐ Principles of analysis of rates.

**OBJECTIVE**

S:

- ☐ To understand the Quality System Standards for Construction Activities.
- ☐ To impart knowledge required to execute any activity.
- ☐ To familiarize students about the method statements & checklist required to successfully finish the activity within the certain quality standards.

**CONTENT**

S:

- ☐ Quality System Standards for construction activities -
- ☐ Introduction to concept of Quality Design in building design & construction.
- ☐ Product Quality Inspections & Tests.
- ☐ Problems of Rework, wastage & compromise in product quality approach.
- ☐ Problems of inspections/Test oriented approach in service quality.
- ☐ Systems approach to Quality.
  
- ☐ Quality Systems Concepts for Building design, construction & management activities.
- ☐ Aspects of QA/QC for of major building items like Woodwork, Brickwork, Steelwork, Flooring, Finishing, Internal Water Supply, Sanitary and Electrical

Services.

Quality of maintenance works, checklists, Contractual implications of quality systems.

Identification & Rectification of works in interior works.

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SEM – 4

BID-20 GENERAL EDUCATION - IV

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**OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

**CONTENTS –**

- Health and Physical Education Credit-1
- Human Values in Education- II Credit-2
  
- Soft Skill Credit-6
  - ✓ English Fluency Development-IV
  - ✓ Building Self Confidence-IV
  - ✓ Communication Skills-IV
  - ✓ Attitude Building-IV
  - ✓ Presentation Skills-IV
  - ✓ Etiquettes & Manners-II
  - ✓ Negotiations Skills-II
  - ✓ Outer Grooming-II
  - ✓ Group Discussion-II
  - ✓ Interview Skills-II
  - ✓ Resume Building-II
  
- Information and Communication Technology Credit-3
  - ✓ Internet:
    - Introduction to Internet
    - Bridges, Routers, Switch, Gate way
    - www, Web Site, URL
    - e-mail, e-Commerce
    - Web browsing, Web page
    - Introduction to Hyper text & HTML
  - ✓ Electronic Spread Sheet

  
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- Introduction to MS-Excel
- Working with Spread Sheet
- Editing the Worksheet
- Worksheet Formatting
- Formula Entering
- Function Wizard
- Saving and Printing Work Book
- Analysis Tools
- Data Tools
- Charts
- Linking Work Sheets
- Report Wizard
- Data Base Application
  - Data Base Components
  - Working with Database
  - Creating Excel Database
  - Adding Records using Data Form
  - Deleting Records using Menu Command
  - Deleting Records using Data Form
  - Editing Records
  - Finding Records based on Criteria

B.VOC. (INTERIOR DESIGN) SEM – 4

OSL-04 ONSITE LEARNING SESSIONS –  
Exposure to Building Services for Integration in  
Interior Design

OBJECTIVES –

- ☐ To enable students to understand the principles and installations of general and specialized services in the interiors.
- ☐ To expose the students to various ways to provide information on the principles of water supply, firefighting and sanitation.
- ☐ To develop the understanding of layout, functioning and application of utilities and services in the interiors.
- ☐ Preparing Coordinated services drawings with relate to Interiors.
- ☐ To familiarize students about the various codes (NBC, BIS, IS).

This course will involve guided site visits aims to familiarize students with the integration of various building services in interiors.

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OBJECTIVES - After completion of this course, the student should be able to

- Describe the roles & responsibilities of supervisor on a small project site.
- Give clear instructions to the subordinates and workers based on superior's directions.
- Assign work to different workers on a small interior project.
- Explain the drawing/design to workmen.
- Document the work progress on day to day basis.
- Prepare short reports of work progress for information of superiors/clients.

CONTENTS -

- Roles & responsibilities of supervisor on interior project site.
- Basics of leadership in context of small team of workers.
- Interpersonal communication and skills.
- Interpreting drawings & explaining layouts on site.
- Motivating workmen.
- Preparing periodic progress reports as per given format.
- Using checklists for supervision.

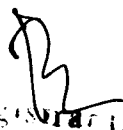
OBJECTIVES –

- To provide skills for designing larger scale institutional and commercial projects with emphasis on detailing, custom designs etc.
- To develop skills for comprehensive design approach and to integrate dimensions of functions to interior spaces and interior elements of space making.
- To develop the skill of design vocabulary, enhancement and sensitization of student in design preparation and its relation to tradition, culture, behavior patterns, use of spaces etc.

CONTENTS -

The primary focus should be on –

- Interior Construction Detailing
- Way finding/signage and graphic identification
- Decorative Accessories
- Building Codes.

  
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- Rendering (hand and computer generated).
- Custom designed furniture and cabinetry
- 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 & National Level.
- Mobile units – buses, cars, railway coaches etc.

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B.VOC. (INTERIOR DESIGN) SEM – 5

BID-23 PREPARING BILL OF QUANTITIES

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OBJECTIVES –

- To interpret drawings and recognize items of work in place and categories them into elements.
- To equip the students with the basic understanding of working out quantities of different materials.
- To familiarize the student about the units of work and the various methods of measurement required to prepare bill of quantities.
- To develop the skill to prepare bill of quantities using MS Excel.

CONTENTS -

- The bill of quantities - types, functions and uses.
- The working up process to the bill of quantities
- Types of measurements, modes of measurements: methods of taking out quantities preparation of schedule or bill of quantities.
- Rate analysis of various items of work: preparation of various items of work in the interior works.
- Prepare a draft Bill of Quantities (BQ) for some of the interior works.
- Basics of contracts.

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B.VOC. (INTERIOR DESIGN) SEM – 5

BID-24 MANAGING SMALL BUSINESS ENTERPRISE

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OBJECTIVES:-

- To provide Knowledge about the methodology of executing a Project. greatly enhances the professional ability of an Architect.
- To expose the students to the currently prevalent techniques in the

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planning, programming and management of a project.

## CONTENTS -

- Characteristics of a professional/office
- Office and its management
- Structure of an Architect's office
- Office Correspondence with Client, Competent Authority, Materials suppliers, Contractors, Expert services agencies.
- Organizing work, staffing, delegation and decentralization.
- Filing and Indexing.
- IT application in office management and procedure.
- General Accounting.
- Overview of taxes prevailing for interior works.

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B.VOC. (INTERIOR DESIGN) SEM - 5

BID-25 GENERAL EDUCATION-V

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## OBJECTIVES -

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

## CONTENTS -

- Health and Physical Education Credit-1
- Soft Skill Credit-8
  - ✓ English Fluency Development-V
  - ✓ Building Self Confidence-V
  - ✓ Communication Skills-V
  - ✓ Attitude Building-V
  - ✓ Presentation Skills-V
  - ✓ Etiquettes & Manners-III
  - ✓ Negotiations Skills-III
  - ✓ Outer Grooming-III
  - ✓ Group Discussion-III
  - ✓ Interview Skills-III
  - ✓ Resume Building-III
- Information and Communication Technology Credit-3
  - ✓ Power Point:

  
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- Introduction to Power Point
- Creating a Presentation/Slide
- Adding Animation in Slide
- Running a Slide Show

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B.VOC. (INTERIOR DESIGN) SEM – 5

OSL-05 ONSITE LEARNING SESSIONS –  
Advanced Building Services

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**OBJECTIVES –**

- 1. To understand the electrical services and utilities generally installed and special types of services and facilities in the interiors and focusing on the principles as well as practical aspects and solutions.
- 2. To develop the understanding of layout, functioning and application of utilities and services in the interiors.
- 3. The course intends to integrate the knowledge of electrical and HVAC services in buildings and to enable a student to take the appropriate decisions at the planning stage from Mechanical & Electrical point of view.
  - To familiarize students about the various codes (NBC, BIS, IS).

This course will involve guided site visits aims to familiarize students with the integration of various building services in interiors.

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OBJECTIVES - At the end of this course the student should be able to

List basic laws and regulations related to HSE and briefly describe their application on construction sites of small scale

Apply their knowledge of HSE on construction site during the process of supervision.

CONTENTS -

Preview of laws related to construction industry:-

The building & construction workers act 1996.

Health and Hygiene.

Recognizing Safety Hazards.

Manual Handling.

Hazardous Substances.

Noise in the Workplace.

Machine and Equipment Safety.

Personal Protective Equipment.

Emergency Procedures.

Sensitization to structural safety.

OBJECTIVES -

To prepare a student to independently handle and present all aspects of interior design: from its evolution to final solution in totality;

To integrate all aspects about a building design and its workings, including service details, innovative structural systems and materials etc.

To develop assimilation, synthesis and application of research in interior design.

CONTENTS -

Each student is expected to prepare a design project based on the preliminary work undertaken in the Interior design studio under an approved guide.

Work should reflect the knowledge gained from all the courses undertaken by the student in all the previous semesters.

The particulars of the schedule, content, presentation, format etc is to be decided by the department from time to time and shall be strictly followed.

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At least two of the following items, for complete design or an approved part thereof, should be covered in full detail and included in the design and presentation, along with the final design proposal-

Detailed estimate and specification.

Working drawing and construction details.

Proposal for various services.

Proposal for Interior design – including furniture, fittings and finishes.

The design proposal should be prepared and presented with the help of charts, Drawings, perspective views, models and other audio-visual aids. A design report must also be prepared and submitted in one soft copy (on CD) and three hard copies (one to be returned to the student) type written and bound together with prints and photographs of all the drawings & models. The design report should explain the objectives, design concept/approach, design proposals, etc.

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B.VOC. (INTERIOR DESIGN) SEM – 6

BID-28 MEASUREMENT & BILLING

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**OBJECTIVES –**

To develop techniques of estimating and costing related to the interior projects.  
To provide basic understanding about measuring different items, Client billing & Sub – Contractor Billing.

**CONTENTS –**

SI measurements system, SI nomenclature methods. Dimensional and modular coordination, modules and modes of measurements practiced by various agencies. Specification types, specification contents, standards developed by trade and industry, government agencies.

- Introduction of DSR.
- Accounts: Explanation of ordinary terms used in book keeping, cash book, work order, measurement book, petty cash and imprest, classification of stores, receipts and meaning of rate analysis.
- Client Billing.
- Sub-Contractor billing.

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B.VOC. (INTERIOR DESIGN) SEM – 6

BID-29 PROFESSIONAL BEHAVIOUR,  
ETIQUETTES & ETHICS

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**OBJECTIVES –** At the end of this course the students should be able to  
Demonstrate appropriate etiquettes and behavior in professional situations.  
To impart awareness and technicalities of code of conduct in professional practice.

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**CONTENTS:**

- Preview of corporate expectations especially in context of different cultures
- Gender sensitive language and behavior multicultural sit,
- Telephonic Conversation and etiquette.
- Etiquettes for email and internet usage during professional work.
- Professional behavior & Ethics.
- Career opportunities, styles of interior design practice, relationship between client and professional, Fee Structure.
- Preliminary knowledge of Consumer protection Act and other related acts on Interior Designers.
- Handing over projects.

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B.VOC. (INTERIOR DESIGN) SEM – 6

BID-30 GENERAL EDUCATION-VI

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**OBJECTIVES –**

- The objective of this paper is to enable the students to interact and communicate with management and labor in field of construction work.
- The multiplicity of interrelated factors which influence the behavior and performance of people as members of work organizations.

**CONTENTS –**

- Health and Physical Education Credit-1
- Human Values in Education- III Credit-2
- Soft Skill Credit-6
- Information and Communication Technology Credit-3

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B.VOC. (INTERIOR DESIGN) SEM – 6

OSL-6 ONSITE LEARNING SESSIONS -

(Demarcation of Design and understanding coordinated drawings)

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**OBJECTIVES –**

To develop the understanding of layout, functioning and application of utilities and services in the interiors.

The course intends to integrate the knowledge of services in buildings and to enable a student to take the appropriate decisions at the planning stage.

To familiarize students about the various codes (NBC, BIS, IS).

This course will involve guided site visits aims to familiarize students with the integration of various building services in interiors and the execution of drawings at construction site.

  
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