

CHHATTISGARH SWAMI VEVEKANAND TECHNICAL UNIVERSITY, BHILAI

Course of Study and Scheme of Examination of Diploma in ARCHITECTURE

SEMESTER - IV

S No.	Subject Code	Board of study	Subject	Periods per week			Scheme of Examination					Total marks	Credit L+(T+P)/2
				L	T	P	Theory			Practical			
							ESE	CT	TA	ESE	TA		
1	216411 (20)	Civil	Site surveying	3	1	-	100	20	20	-	-	140	4
2	216412 (16)	Architecture	Building services	4	1	-	100	20	20	-	-	140	5
3	216413 (16)	Architecture	Building Construction **-III	3	1	-	100	20	20	-	-	140	4
4	216414 (16)	Architecture	Design*-II	4	1	-	100	20	20	-	-	140	5
5	216415 (16)	Architecture	Estimating & Costing - Architecture	3	1	-	100	20	20	-	-	140	4
6	216421 (20)	Civil	Site surveying Lab			4	-	-	-	50	20	70	2
7	216422 (16)	Architecture	Building Construction-III Lab	-	-	4	-	-	-	50	30	80	2
8	216423 (16)	Architecture	Design-II Lab	-	-	3	-	-	-	50	30	80	2
9	216424 (16)	Architecture	Estimating & Costing - Architecture, Lab	-	-	3	-	-	-	50	20	70	2
		TOTAL		17	5	14	500	100	100	200	100	1000	30

L-Lecture, T-Tutorial, P-Practical, ESE-End semester exam, CT-Class Test, TA-Teachers assessment.

*Theory paper duration 6Hrs.(3Hrs.+1/2 to 1 Hr.Break + 3Hrs.

**Theory paper duration 4Hrs

*** Professional Training will be carried out after IV the sem., in summer vacation. The evaluation will be done in 5th semester only.

CHHATTISHGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

- A) SEMESTER :IV
 B) COURSE TITLE : SITE SURVEYING
 C) CODE : 216411 (20)
 D) BRANCH / DISCIPLINE: ARCHITECTURE
 E) RATIONALE :

All Building proposals are designed considering the site and situation, the shapes and size, area content, outline, slope, aspect, topography. Through survey these details can be found. Therefore course aims at providing all theoretical and practical education in site survey. The emphasis is led on acquainting oneself to the instruments and their use, survey method, fieldwork, office work etc. the students shall be able to

- ?? Handle the survey equipments independently
- ?? Obtain technological knowledge about site surveying
- ?? Develop surveying abilities
- ?? Acquire skill in operating survey instruments

F) TEACHING AND EXAMINATION SCHEME:

Course code	Periods/ week (In Hours)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
216411 (20)	3	1	-	100	20	20	-	-	140	4
216421 (20)	-	-	4	-	-	-	50	20	70	2

G) DISTRIBUTION OF MARKS AND HOURS:

S.NO.	CHAPTER NO.	CHAPTER NAME	HOURS	MARKS
1.	1.	SURVEYING	6	10
2.	2.	ERRORS AND ITS ELIMINATION IN CHAIN AND TAPE SURVEYING	7	10
3.	3.	CHAIN SURVEYING	6	10
4.	4.	COMPASS SURVEYING	7	10
5.	5.	TRAVERSING BY COMPASS	6	10
6.	6.	PLANE TABLE SURVEY	7	10
7.	7.	LEVELLING	6	10
8.	8.	CONTOURING	7	10
9.	9.	THEODOLITE	6	10
10.	10.	LAYOUT BY THEODOLITE	6	10
		TOTAL	64	100

H) DETAILED COURSE CONTENTES:

Chapter -1: Surveying

- ?? Definition
- ?? Objective
- ?? Instruments used
- ?? Types

Chapter -2: Errors And Its Elimination in Chain and Tape Surveying

- ?? Error
- ?? Types of error
- ?? Effect and elimination
- ?? Numerical

Chapter -3: Chain Surveying

- ?? Definitions
- ?? Types of chain and its uses
- ?? Traversing and triangulation survey
- ?? Numerical

Chapter -4: Compass Surveying

- ?? Definitions
- ?? Prismatic compass
- ?? Surveyors compass
- ?? Precautions
- ?? Errors

Chapter -5: Traversing By Compass

- ?? Traversing by prismatic or surveyor compass in field
- ?? Closing errors

Chapter -6: Plane Table Survey

- ?? Introduction
- ?? Different types of plane table survey
- ?? Locating points in plane table surveying (2 pt., 3pt., problem)

Chapter -7: Levelling

- ?? Dumpy level –Levelling by height of instrument method.
- ?? Dumpy level –Levelling by rises and fall method.
- ?? Numerical

Chapter -8: Contouring

- ?? Definition
- ?? Plotting and its type

Chapter-9: Theodolite

- ?? Introduction and use of Theodolite

Chapter-10: Layout by Theodolite

?? Layout of a building by Theodolite

D) SUGGESTED INSTRUCTIONAL STRATEGIES:

?? Lecture method

?? Demonstration of instruments

?? Proper handling of instruments

?? Use of instruments through demonstration on sites

j) SUGGESTED LEARNING RESOURCES

Reference books:

S.No.	Title	Author and publisher
1.	Surveying and levelling	Rangwala, Charotar Publications, Anand.
2.	Surveying and levelling	T.P.Kanaticar,, laxmi publications, New Delhi
3.	Surveying and levelling	B.C. Punmia, laxmi publications, New Delhi

COURSE TITLE : SITE SURVEYING LAB

PRACTICAL CODE: 216421 (20)

TOTAL HOURS: 64

K) LIST OF PRACTICALS / TUTORIALS:

?? Chain surveying

?? Compass surveying

?? Plane table surveying

?? Levelling

?? Layout of building

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

- A) **SEMESTER** : IV
 B) **SUBJECT TITLE** : BUILDING SERVICES
 C) **CODE** : 216412 (16)
 D) **BRANCH / DISCIPLINE** : ARCHITECTURE
 E) **RATIONALE** :

Human life and its comforts are basically dependant on the services he has at home and at place of his work. Present day experiences, number of technological and functional advances in designing, laying and upkeep of services, this course provides a basic knowledge about the building services in all its related areas .the emphasis is laid on its related areas and its smooth employment in all types of building so that the life is at ease. the course also aims at enabling students to design building projects commensurate with the expected services. The main objective of this subject is to develop following skill and knowledge: -

- Gain knowledge about different types of services
- ?? Develop confidence in design considerations
- ?? Achieve skill in presenting services layout
- ?? Modify the existing services pattern and modernize it

F) TEACHING AND EXAMINATION SCHEME:

Course Code	Periods / Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
216412 (16)	4	1	-	100	20	20	-	-	140	5

G) DISTRIBUTION OF MARKS AND HOURS:

	CHAPTER NO	CHAPTER NAME	HOURS	MARKS
1	1	INTRODUCTION	5	10
2	2	WATER SUPPLY AND RAIN WATER HARVESTING	10	10
3	3	PLUMBING FIXTURES	5	10
4	4	PLUMBING SYSTEM	10	10
5	5	SANITARY FIXTURES	10	10
6	6	DRAINAGE SYSTEM, SEPTIC TANK AND SOAK PIT	5	10
7	7	WASTE DISPOSAL	10	10
8	8	FIRE SAFETY	5	10

9	9	AIR CONDITIONING SYSTEMS	10	10
10	10	ELECTRICAL SYSTEM	10	10
TOTAL			80	100

H) DETAILED CONTENTS:

Chapter -1- Introduction

?? Definition

?? Different types of services for residential and commercial building and its necessity

Chapter -2- Water Supply and Rain Water Harvesting

?? System from source to, overhead tank, sump well, pipes and types of pipe, per capita water consumption in cities, public places. Water supply to building from public service line.

?? Drawing showing water supply system for a single story building, rainwater harvesting system

Chapter-3: Plumbing Fixtures

?? House fittings, taps. Cistern, showers, valves etc.

Chapter -4- Plumbing System

?? Types of taps, plumbing system (single stack, double stack, partially ventilated systems)

Chapter -5- Sanitary Fixtures

?? Different types of taps, water closet pan, wash basin, flushing cisterns etc.

Chapter -6- Drainage System, Septic Tank and Soak Pit

?? Pipes/drains types of pipes, joints,

?? Principles of drainage system, manhole chambers, drop manholes etc.

?? Function of septic tank

?? Function of soak pit and types

Chapter -7- Waste Disposal

?? Type of industrial and domestic waste, disposal of dry refuse

Chapter -8- Fire Safety

?? Function, types, necessity of fire safety.

Chapter- 9- Air Conditioning Systems

?? Preliminary knowledge of A.C., principles of A.C., natural and forced ventilation, types of A.C etc.

Chapter -10- Electrical System

?? Preparation of circuit diagram of building Definition of electrical terms, symbols, precaution etc.

?? Drawing showing cable connections of 3 phase meters

?? Different lighting system

I) SUGGESTED INSTRUCTIONAL STRATEGIES:

- ?? Lecturer Method
- ?? Industrial visit
- ?? Demonstration

H) SUGGESTED LEARNING RESOURCES**(a) Reference Books:**

S.No.	Title	Author, publisher, edition & year
1.	Building construction	Sushil kumar, Standard publishers & distributors, 1705-B, Nai Sarak, Delhi.
2.	Building construction	S.C.Rangwala, Charottor. Pub, House, opposite amul dairy,court road,Anand -388001
3	Building construction	B.C.Punamia, Laxmi Publication Pvt ltd, New Delhi.(fifth ed.-1997)
4	Air conditioning system	Domkundwar & Arora, Danpat Rai publishing company private ltd, 4748/23, Ansari road, Daryaganj, New Delhi. -110002
5	Electrical wiring Estimating & Costing	Dr. S.N.Uppal, Khanna Publishers, Delhi.
6	Interior Design Principles and Practice	M. Pratap Rao, Standard Publishers Distributors, 1705-B, Nai Sarak, Delhi-110006, 2001

(b)Others

- ?? Lab manual

LIST OF SESSIONAL:

Plan section and elevation of: -

- ?? Al sheet on various rendering techniques
- ?? Presentation of any two 2d drawing by various means (through plans, elevations, views). The presentation should be done with the help of above studied medium.
- ?? Presentation of drawing(s) showing various textures
- ?? Visualizing any one 3d model/drawing and its presentation in the form of drawing
- ?? Study of (any2) current design problem/landscape problem/historical building, monument etc and its presentation in the form of sheets/slides. the above should be properly rendered in proper medium.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

- A) **SEMESTER** : IV
 B) **SUBJECT TITLE** : BUILDING CONSTRUCTION- III
 C) **CODE** : 216413 (16)
 D) **BRANCH / DISCIPLINE** : ARCHITECTURE
 E) **RATIONALE** :

the course content equip the students with the theoretical knowledge of building construction as well as develop thinking and design ability needed for building frame and component like in R.C.C. Slab, Chajja and staircase etc. By studying this subject students will gain confidence in reading and preparing construction drawing.

F) TEACHING AND EXAMINATION SCHEME:

Course Code	Periods / Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
216413 (16)	3	1	-	100	20	20	-	-	140	4
216422 (16)	-	-	4	-	-	-	50	30	80	2

L: Lecture hours, T: Tutorial hours, P: Practical hours,
 ESE: End of Semester Exam, CT: Class test, TA: Teacher's Assessment.

G) DISTRIBUTION OF MARKS AND HOURS:

SL.NO.	CHAPTER NO.	CHAPTER NAME	HOURS	MARKS
1	1	R.C.C-I	5	10
2	2	R.C.C-II	6	10
3	3	R.C.C-III	5	10
4	4	R.C.C-IV	6	10
5	5	R.C.C-V	8	10
6	6	TIMBER ROOF-I	6	10
7	7	TIMBER ROOF-II	6	10
8	8	TRUSSES	6	10
9	9	STEEL TRUSSES-I	8	10
10	10	STEEL TRUSSES-II	8	10
		TOTAL	64	100

H) DETAILED CONTENTS:

Chapter -1- R.C.C-I

?? R.C.C. footing

Chapter-2: R.C.C-II

R.C.C. staircase

Chapter -3- R.C.C-III

?? R.C.C. chhajja

Chapter -4- R.C.C-IV

?? Singly reinforced beam

?? Doubly reinforced beam

Chapter -5- R.C.C-V

?? R.C.C. one way slab

?? R.C.C. two way slab

Chapter -6- Timber Roof-I

?? Single lean to roof

Chapter -7- Timber Roof-II

?? King post truss

Chapter -8- Trusses

?? Elevations of different types of trusses.

Chapter -9- Steel Trusses-I

?? North light truss

??

Chapter -10- Steel Trusses-II

?? Tubular truss

D) SUGGESTED INSTRUCTIONAL STRATEGIES:

?? Lecture Method

?? Site visits

H) SUGGESTED LEARNING RESOURCES

Reference Books:

S..No.	Title	Author, Publisher, Edition & Year
1	Building construction	McKay, Orient long man
2	Text Book of Building construction	S.P. Arora and Bindra, Dhanpat Rai and Sons
3	Building drawing	Shah ,Kale,Patki,Tata McGraw HILL
4	Building construction	Sushil Kumar, standard publication distributors 1705,b,nai sarak, delhi
5	Building construction	S.C. Rangwala, Charotar Publication s, ANAND
6	Building construction	B.C. Punmia, laxmi publications, New Delhi

SUBJECT TITLE : BUILDING CONSTRUCTION- III Lab

PRACTICAL CODE: 216413 (16)

TOTAL HOURS: 64

LIST OF PRACTICAL / TUTORIALS:

- ?? Sections of footings.
- ?? Sectional elevation and plan of R.C.C. staircase showing details of reinforcement
- ?? Sectional elevation and plan of R.C.C. chhajja showing reinforcement details.
- ?? Plan and sections showing reinforcement details of singly and doubly reinforced beam.
- ?? Plan and sections showing reinforcement of R.C.C. one-way slab.
- ?? Plan and sections showing reinforcement of R.C.C. two way slab.
- ?? Elevation and details of Single lean to roof.
- ?? Sectional elevation and details of King post truss.
- ?? Elevations of various types of trusses.
- ?? Elevation and details of North light truss.
- ?? Elevation and details of Tubular truss.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

- A) **SEMESTER** : IV
 B) **SUBJECT TITLE** : DESIGN - II
 C) **CODE** : 216414 (16)
 D) **BRANCH / DISCIPLINE** : ARCHITECTURE
 E) **RATIONALE** :

Design is the end result of what one conceives through imagination ruled by certain rules and limitations. The basic understanding of what the design is and it is to viewed and done is provided in the course with provision of certain experience that lead to the generation of thinking for creation for desired needs with wanted outcome.

Specific designs one also provided in the course to enable then to get acquainted with certain special feature and requirements this course in addition to above serves as a tore- requisite to further learning in the design.

Objective: The students will be able to:

- (i) Gain insight in to design considerations
- (ii) Develop thinking ability with development of imagination needed for building designs.
- (iii) Develop confidence in accepting task.
- (iv) Acquire skill of expression and presentations.
- (v) Develop positive attitudes for all that is good for good design.

F) TEACHING AND EXAMINATION SCHEME:

Course Code	Periods / Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
216414 (16)	4	1	-	100	20	20	-	-	140	5
216423 (16)	-	-	3	-	-	-	50	30	80	2

G) DISTRIBUTION OF MARKS AND HOURS:

SL NO.	CHAPTER ON.	CHAPTER NAME	HOURS	MARKS
1	1	LIGHT	10	-
2	2	BUILDING DESIGN	70	100
TOTAL			80	100

*-No question will be asked from chapter-1 in the examination

H) DETAILED CONTENTS:

Chapter -1- Light

- ?? Daylight in architectural space.
- ?? Window opening size and position in a room (General Guidelines)
- ?? Introduction of artificial light.
(Chapter 1 is not for theory Examination)

Chapter-2: Building Design

- (i) Introduction of a design problem (primary school, nursery school, primary health center, small town library, restaurant etc.)
- (ii) Literature study, case study, site analysis (if required)
- (iii) Study of function of the design problem.
- (iv) Primary stage of plans
- (v) Finalization of plans.
- (vi) Formulation of elevations.
- (vii) Formulation of sections.
- (viii) Views or any desired detail of the design problem.
- (ix) Site plan drafting.
- (x) Model (If assigned)

D) SUGGESTED INSTRUCTIONAL STRATEGIES:

- ?? Lecturer method
- ?? Case study
- ?? Site visits.
- ?? Demonstration of expert's works.
- ?? Studio work.

H) SUGGESTED LEARNING RESOURCES

(a) Reference Books:

Sl.No.	Title	Author, Publisher, Edition & Year
1	Time Saver Standards For Building Types	Joseph De Chiara And John
2	Ernst Neufert Architects Data	Jones Vicient , Blacklyell , Scientific Publication , Oxford.
3	Architectural Graphic Standard	Ramsey Sleeper, Super Book House, Mumbai.

(b) Journals:

1. A+D – Mediatria (P) 219, Tulsia Chambers, 212 Nariman Point, Bombay – 400021.
2. INSIDE OUTSIDE – The Manager C-N, 23/90 Can naught Places New Delhi – 01

(c) Architecture related websites.

SUBJECT TITLE : DESIGN – II LAB

PRACTICAL CODE: 216423 (16)
TOTAL HOURS: 48

LIST OF PRACTICAL / TUTORIALS:

- ?? Notes on Light.
- ?? All Level plans of Design Problem.
- ?? Elevations.
- ?? Sections.
- ?? View or Details
- ?? Site Plan
- ?? Model (If Assigned)

(All drawings will be in the presentable form, any detail will be drawn on separate sheet)

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY,
BHILAI**

- A) **SEMESTER** : IV
 B) **SUBJECT TITLE** : ESTIMATING AND COSTING ARCHITECTURE
 C) **CODE** : 216415 (16)
 D) **BRANCH / DISCIPLINE** : ARCHITECTURE
 E) **RATIONALE** :

All economic activities have their roots in estimating, so also interior design. The course aims at providing necessary input on current practices of estimating and costing. The emphasis is also laid on using computer for estimation. The student can develop analytical ability through the contents of course. The students will be able to:-

- 1) Appreciate the need and importance of the estimating and costing.
- 2) Acquire ability to prepare estimate.
- 3) Obtain insight into the contract and execution documents.

F)TEACHING AND EXAMINATION SCHEME:

Course Code	Periods / Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
216415 (16)	3	1		100	20	20	-	-	140	4
216424 (16)	-	-	3				50	20	70	2

G) DISTRIBUTION OF MARKS AND HOURS:

S NO.	CHAPTER NO.	CHAPTER NAME	HOURS	MARKS
1	1	ESTIMATE AND ITS TYPE	09	15
2	2	ESTIMATION TECHNIQUES	10	15
3	3	MODE OF MEASUREMENT	10	15
4	4	SCHEDULE OF RATES	10	15
5	5	ANALYSIS OF RATES	10	15
6	6	ESTIMATE OF DIFFERENT TYPES OF BUILDING WORK	15	25
TOTAL			64	100

DETAILED COURSE CONTENTS:

Chapter-1- Estimate And Its Types

- ?? Definition and types of estimate
- ?? Examples

Chapter-2-Estimation Techniques

- ?? Method of finding out quantities for different types of works

Chapter-3- Mode of Measurement

- ?? How to measure quantities

Chapter-4- Schedule of Rates

- ?? Government prescribed schedule of rates
- ?? Current market rates of materials

Chapter-5- Analysis of Rates

- ?? Analysis of rates for masonry, concrete, plaster, woodwork, earthwork, painting etc.
- ??

Chapter-6- Estimate of Different Types of Building Work

- ?? Preparation of estimate on a building from earthwork excavation to finishing level.

(II) SUGGESTED INSTRUCTIONAL STRATEGIES:

- ?? Lecture Method
- ?? Demonstration
 - (i) Lecture can be demonstrated through OHP, LCD etc.
 - (ii) Estimate can be made using computer.

H) SUGGESTED LEARNING RESOURCES.

Reference Books:

S.No.	Title	Author, Publisher, Edition& Year
1.	Estimating and costing in Civil Engineering Theory + Practice	B.N.Dutta UPS Publishers Distribution Ltd., New Delhi
2	Professional Practice (Estimating & Valuation)	Roshan H. Namavati,Lakhani Book Depot, Ramchandra building, 437, Charni Road, Girgaum, Mumbai 400004.

SUBJECT TITLE : ESTIMATING AND COSTING ARCHITECTURE

PRACTICAL CODE: 216424 (16)

HOURS : 48

LIST OF PRACTICAL / TUTORIALS:

- 1) Work out an estimate of typical open foundation building.
- 2) Work out an estimate of typical frame structure building.