STATE COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA									
TEACHING AND EVALUATION SCHEME FOR 3rd Semester (AA)(wef 2019-20)									
Subject Number	Subject Code	Subject	Periods/week			Evaluation Scheme			
			L	T	P	Internal Assessment/ Sessional	End Sem Exams	Exams (Hours)	Total
		Theory							
Th.1		History of Architecture	4		-	20	80	3	100
Th.2		Building Materials	4		-	20	80	3	100
Th.3		Building Construction	4		-	20	80	3	100
Th.4		Surveying	4			20	80	3	100
Th.5		Environmental Studies	4			20	80	3	100
		Total	20			100	400	-	500
		Practical							
Pr.1		Basic Design & Model Making	-	-	4	25	25	4	50
Pr.2		Graphic Design	-	-	3	25	25	4	50
Pr.3		Building Construction	-	-	4	25	25	4	50
Pr.4		Surveying Practical	-	-	3	25	25	4	50
Pr.5		AutoCAD-I	-	-	4	25	25	4	50
		Student Centred Activities(SCA)	-	-	1	-	-	-	-
		Total	-	-	*19*	*125*	*125*	-	*250*
		Grand Total	**20**	**-**	**19**	**225**	**525**	**-**	**750**
Abbreviations: L-Lecturer, T-Tutorial, P-Practical . Each class is of minimum 55 minutes duration									
Minimum Pass Mark in each Theory subject is 35% and in each Practical subject is 50% and in Aggregate is 40%									
SCA shall comprise of Extension Lectures/ Personality Development/ Environmental issues /Quiz /Hobbies/ Field visits/ cultural activities/Library studies/Classes on MOOCS/SWAYAM etc. ,Seminar and SCA shall be conducted in a section.									
There shall be 1 Internal Assessment done for each of the Theory Subject. Sessional Marks shall be total of the performance of individual different jobs/ experiments in a subject throughout the semester									

CURRICULLUM OF 3RD SEMESTER

For

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP.

(Effective FROM 2019-20 Sessions)

STATE COUNCIL FOR TECHNICAL EDUCATION & VOCATIONAL TRAINING, ODISHA, BHUBANESWAR

HISTORY OF ARCHITECTURE (TH-I)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	3 hrs
Theory periods:	4P / week	Internal Assessment:	20
Maximum marks:	100	End Semester Examination :	80

A. RATIONALE:

This course is designed to give basic inputs about development of architecture which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

This subject helps to develop knowledge about the chronological development of architecture from the early age to modern days and to know the architectural style in different stages of the world history.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	European architecture	20
2	Indian architecture	25
3	Contemporary architecture	15
	Total:	**60**

D. COURSE CONTENTS

1.0 European Architecture

1.1 **Egyptian Architecture**
- 1.1.1 Architectural characteristics and details of features.
- 1.1.2 Sketch of Mastaba, Great Pyramid of Giza, Temple of Khons at Karnak, The Great Sphinx of Chepheren.

1.2 **Greek Architecture**
- 1.2.1 Architectural characteristics and details of features
- 1.2.2 Sketch of Greek classical orders of Doric, Ionic, and Corinthian. Temple of Parthenon at Athens.

1.3 **Roman Architecture**
- 1.3.1 Architectural characteristics and details of features
- 1.3.2 Sketch of Roman orders: Doric, Ionic, Corinthian, Composite, Tuscan order. Temple of Saturn at Rome

2.0 Indian Architecture

2.1 **Buddhist Architecture**
- 2.1.1 Architectural characteristics and detail features
- 2.1.2 Sketch of the Great Stupa of Sanchi, Chaitya Hall and Vihara.

2.2 **Temple Architecture (Indo Aryan Style)**
- 2.2.1 Architectural characteristics and detail features of Odishan Temple

2.2.2 Sketch of the Sun Temple at Konark, the Lingaraj Temple at Bhubaneswar

2.3 **Muslim Architecture**

2.3.1 Architectural characteristics and detail features

2.3.2 Sketch of Juma Masjid, Tajmahal and the Qutab Minar

3.0 Contemporary Architecture

3.1 Contemporary structures: Eiffel Tower, Bahai Temple and Burz -al-Khalifa

3.2 Works of famous architects: Frank Lloyd Wright, Le Corbusier, B.V.Doshi and Charles Correa

N.B. Students are required to visit Odishan temples at Bhubaneswar, Puri and Konark.

Syllabus coverage up to Internal assessment

Chapters: 1

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	History of world architecture	Sir Banister Fleture	Oxford
2.	Indian History of architecture	Percy Brown	Kiran Book Agency
3.	History of world architecture	G. K. Hiraskar	Dhanpat Rai & Co

BUILDING MATERIALS (Th-II)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	3 hrs
Theory periods:	4P / week	Internal Assessment:	20
Maximum marks:	100	End Semester Examination :	80

A. RATIONALE:

This course is designed to give basic inputs about the engineering and building materials which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

This subject helps to develop knowledge of the students about different engineering materials and its use in architectural construction.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Stone	10
2	Brick	10
3	Cement	5
4	Concrete and R.C.C	5
5	Timber	5
6	Paints/varnishes and Distemper	5
7	Ferrous/Non-ferrous metals	5
8	Plastics	5
9	Glass	5
10	Aluminum	5
	Total:	**60**

D. COURSE CONTENTS

1.0 Stone:

- 1.1 Classification of stones
- 1.2 Properties of good quality building stone
- 1.3 Uses of building stone

2.0 Brick:

- 2.1 Classification of bricks
- 2.2 Properties of good quality of bricks

3.0 Cement:

- 3.1 Ingredients of cement
- 3.2 Types of cement
- 3.3 Properties of good cement
- 3.4 Uses of cement

4.0 Concrete and R.C.C.

- 4.1 Components of concrete.

4.2 Characteristics of concrete.
4.3 Use of concrete and R.C.C.
4.4 Distinguish between plain cement concrete and R.C.C

5.0 Timber:
5.1 Constitution and properties of timber (showing cross section)
5.2 Use of woods for different engineering purpose
5.3 Characteristics of a good timber

6.0 Paints, Varnish, Distemper:
6.1 Composition of paints varnishes and distempers.
6.2 Qualities of good paints, varnishes and distempers.
6.3 Uses of paints, varnishes and distemper.

7.0 Ferrous and non-ferrous metals:
7.1 Type ferrous and non-ferrous metals
7.2 Properties of good ferrous non-ferrous metals
7.3 Uses of steel in engineering applications

8.0 Plastics/PVC.
8.1 Types of plastic.
8.2 Uses and advantages of plastic

9.0 Glass:
9.1 Types of glass
9.2 Properties of glass

10.0 Aluminum:
10.1 Commercially available channels and sections
10.2 Application in buildings

Syllabus coverage up to Internal assessment
Chapters: 1, 2, 3, 4 and 5.

N.B:- 1. Students are required to do the market survey & collect the samples of materials along with their prevailing market rate and their commercially available brands.
2. Students are required to visit different construction sites, brick kilns, stone quarry and building centers.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Building Material	S. C. Rangwala	Charotar Publication
2.	Building Materials	B.C. Punmia	Laxmi
3.	Building Materials	S.K. Duggal	New Age International Pvt Ltd

BUILDING CONSTRUCTION (TH-III)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	3 hrs
Theory periods:	4P / week	Internal Assessment:	20
Maximum marks:	100	End Semester Examination :	80

A. RATIONALE:

This course is designed to give basic inputs about the construction of building which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

The subject is required to develop the knowledge & know-how about building construction methods and technique and acquire skill of drawing construction details.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Stone masonry	6
2	Brick masonry	6
3	Cement concrete construction.	6
4	Foundation	6
5	Carpentry and journey	6
6	Doors and windows.	5
7	Roofs	5
8	Stairs	5
9	Floors	5
10	Form work	5
11	Pointing and plastering	5
	Total:	**60**

D. COURSE CONTENTS

1.0 Stone masonry

1.1 Types of stones used in building construction.
1.2 Types of stone masonry.
1.3 Types of stone dressing.
1.4 Principles of stone masonry

2.0 Brick masonry

2.1 Types of bricks used in masonry.
2.2 Principles of brick masonry
2.3 Types of bonds in brick masonry

3.0 Cement concrete construction

3.1 Materials used in cement concrete construction.
3.2 Mixing, placing and compacting of cement concrete.

3.3 Curing of cement concrete work
3.4 Types of cement concrete construction - Caste-in-situ and precast.
3.5 Advantages of cement concrete.
3.6 Use of reinforcement in cement concrete work.
3.7 Defects in cement concrete construction and their removal

4.0 Foundation

4.1 Foundations for load bearing walls and piers.
4.2 Isolated & combined foundation in R.C.C.
4.3 Raft foundation
4.4 Pile foundation

5.0 Carpentry & Joinery

5.1 Tools used in carpentry works
5.2 Joineries used in timber works

6.0 Doors & Windows

6.1 Ledged and braced door
6.2 Ledged and framed door
6.3 Ledged, framed and braced door
6.4 Framed and paneled door and flush doors.
6.5 Types of windows

7.0 Roofs

7.1 Classification of roofs
7.2 Construction method and details of pitch roofs.

8.0 Stairs

8.1 Definitions
8.2 Types of staircase
8.3 Wooden staircase
8.4 RCC Staircase

9.0 Floors

9.1 Types of floors
9.2 Methods of laying floors
9.3 Finishing of floors with different floor finishes like cement, mosaic, terrazzo, tiles, marble and PVC/Linoleum

10.0 Form work

10.1 Function of formwork
10.2 Materials used in form work.
10.3 Formwork for columns, floors, walls& stairs

11.0 Pointing& plastering

11.1 Methods and types of pointing
11.2 Plastering: Material and methods
11.3 External finishes

NB: Students should visit different construction sites to acquire practical knowledge about different construction techniques.

Syllabus coverage up to Internal assessment

Chapters: 1, 2, 3, 4 and 5.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Building construction	S. C. Rangwala	Charotar Publication
2.	Building construction	W.B.Mackey	Laxmi
3.	Building construction	Bindra Aurora and Sushil Kumar.	Dhanpat Rai Publications

SURVEYING (TH-IV)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	3 hrs
Theory periods:	4P / week	Internal Assessment:	20
Maximum marks:	100	End Semester Examination :	80

A. RATIONALE:

This course is designed to give basic inputs about surveying which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

On completion of the subject the students will be able to:

1.0 Use of chain surveying and the instruments for it along with their correctness check.
2.0 Adjust a compass and use it
3.0 calculate the bearings of line and convert them from one system to other
4.0 Set , adjust dumpy level and use it for taking the levels of different points on grounds
5.0 Define contour line, contour interval and explain various characteristics of contouring and use of contour lines.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Chain survey	12
2	Compass Survey	10
3	Bearings	10
4	Leveling	10
5	Contouring	10
6	Concept of GPS& DGPS.	8
	Total:	**60**

D. COURSE CONTENTS

1. **Chain Survey**

1.1 State and explain the principles of chain surveying .Instruments used their description and checking their correctness.
1.2 State and explain the ranging and chaining of a line.
1.3 State and explain the errors in chaining and solve problem.
1.4 State and explain the offsets.

1.4.1 State and explain the average ordinate method.
1.4.2 State and explain the Trapezoidal rule.
1.4.3 State and explain the Simpson's Rule.

2. **Compass Survey:**
   3.1 Describe and explain the prismatic compass, and its use.
3. **Bearings:**
   3.1 Explain W.C.B and R.B and conversion from one to another.
   3.2 Explain fore and back bearings and their conversion.
   3.3 Explain computation of angles from bearings and bearing from angles.
   3.4 Explain Local attractions, its determination and necessary correction to the bearings.
4. Leveling:
   4.1 Conduct the study of levels (Dumpy level).
   4.2 Explain the principles of leveling.
   4.3 Describe the temporary adjustment of dumpy level.
   4.4 Describe the leveling by H.I method and rise and fall method.
5 Contouring.
   5.2 Explain the contour line, contour internal, horizontal equivalent.
   5.3 Explain the various characteristics of contouring.

Syllabus coverage up to Internal assessment

Chapters: 1, 2 and 3

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Surveying and Levelling	N.N. Basak	McGraw-Hill Education
2.	Text Book of Surveying	C.Venketramaiah	Universities Press
3.	Surveying	B.C. Punmia	Firewall Media

ENVIRONMENTAL STUDIES

Common to all branches of Engineering

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	3 hrs
Theory periods:	4P / week	Internal Assessment:	20
Maximum marks:	100	End Semester Examination :	80

A. OBJECTIVE:

After completion of study of environmental studies, the student will be able to:

1. Gather adequate knowledge of different pollutants, their sources and shall be aware of solid waste management systems and hazardous waste and their effects.
2. Develop awareness towards preservation of environment.

B. Topic wise distribution of periods:		
Sl. No.	**Topics**	**Period**
1	The Multidisciplinary nature of environmental studies	04
2	Natural Resources Renewable and non-renewable resources	10
3	Ecological systems	10
4	Biodiversity and its conservation	08
5	Environmental Pollution	08
6	Social issues and the Environment	12
7	Human population and the environment	08
	Total:	**60**

C. COURSE CONTENTS

1. The Multidisciplinary nature of environmental studies

Definition, scope and importance, Need for public awareness.

2. Natural Resources

Renewable and non-renewable resources:

a) Natural resources and associated problems.
- Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.
- Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
- Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.

- Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity, .
- Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
- Land Resources: Land as a resource, land degradation, man induces land slides, soil erosion, and desertification.

b) Role of individual in conservation of natural resources.
c) Equitable use of resources for sustainable life styles.

3. Systems

- Concept of an eco system.
- Structure and function of an eco system.
- Producers, consumers, decomposers.
- Energy flow in the eco system

Ecological succession.

- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following eco system:
- Forest ecosystem:
- Aquatic eco systems (ponds, streams, lakes, rivers, oceans, estuaries).

4. Biodiversity and it's Conservation

- Introduction-Definition: genetics, species and ecosystem diversity.
- Biogeographically classification of India.
- Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values.
- Biodiversity at global, national and local level.
- Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts.

5. Environmental Pollution.

Definition Causes, effects and control measures of:

a) Air pollution.
b) Water pollution.
c) Soil pollution
d) Marine pollution
e) Noise pollution.
f) Thermal pollution
g) Nuclear hazards.

Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
Role of an individual in prevention of pollution.
Disaster management: Floods, earth quake, cyclone and landslides.

6. Social issues and the Environment

Form unsustainable to sustainable development.

- Urban problems related to energy.

- Water conservation, rain water harvesting, water shed management.
- Resettlement and rehabilitation of people; its problems and concern.
- Environmental ethics: issue and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.
- Air (prevention and control of pollution) Act.
- Water (prevention and control of pollution) Act.
- Public awareness.

7. Human population and the environment

- Population growth and variation among nations.
- Population explosion- family welfare program.
- Environment and human health.
- SDF Human rights.
- Value education
- Role of information technology in environment and human health.

Syllabus Coverage up to I.A
Chapter 1,2,3,4

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Textbook of Environmental studies	ErachBharucha	#UGC
2.	Fundamental concepts in Environmental Studies	D.D. Mishra	S.Chand & Co-Ltd
3.	Text book of Environmental Studies	K.Raghavan Nambiar	SCITECH Publication Pvt. Ltd.
4.	Environmental Engineering	V.M.Domkundwar	Dhanpat Rai& Co.
5.	Environmental Engineering & Safety	B.K.Mohapatra	

BASIC DESIGN AND MODEL MAKING (PR-I)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	4 hrs
Practical periods:	4P / week	Sessional:	25
Maximum marks:	50	End Semester Examination:	25

A. RATIONALE:

This course is designed to give basic inputs about principles of design which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

To impart preliminary understanding and drawing skills to design buildings and make models.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Drawings and models of geometrical solid and theme based composition. Using different materials like Ivory, mount board, balsa wood, acrylic sheet.	15
2	Drawing and model of a small built space and preparation of base board showing site plan with landscaping elements and pathways.	10
3	Measured Drawing	15
4	Design of a small residential building and preparation of its model	20
	Total:	**60**

D. COURSE CONTENTS

1. Geometrical solids/ Form oriented objects and composition using different types of materials like ivory sheets, balsa wood, acrylic, or any other suitable materials.

2. Design of small spaces and Preparation of base board and landscape elements
   2.1. Preparation of base board using wood and ply or thermocol
   2.2. Preparation of lawn and earth mounds
   2.3. Preparation of trees and shrubs.
   2.4. Paving and roads.
   2.5. Preparation of water bodies.

Garden shelters, memorials, bus shelter, rest space and public toilet, kiosks, ice-cream parlour, any type of small commercial space (shops).

(Any one of the above)

3. Measured Drawing

   Measured drawing of residential building

The above measured drawings will be presented after measuring the buildings and drawing the plan, elevations and sections in appropriate scale.

4. Design of small spaces

One bedroom residential building

All the above designs to be presented with site plan, floor plan, elevations and sections and a model

N.B: The sheets and models have to be done in the studio and evaluated by the teacher regularly.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Architecture : Form, Space, and Order	Francis D.K. Ching	Wiley
2.	Understanding Architecture	Leland M. Roth	Westview Press
3.	The Ten Books on Architecture	Vitruvius Pollio	New York: Dover Publications

GRAPHIC DESIGN (PR-II)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	45	Examination :	4 hrs
Practical periods:	3P / week	Sessional:	25
Maximum marks:	50	End Semester Examination:	25

A. RATIONALE:

This course is designed to give basic inputs about principles of graphic design which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

To impart preliminary understanding of space, form and aesthetics involved in architecture and develop skill of presentation.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Free hand drawing study	25
2	Scaled drawing	20
	Total:	**45**

D. COURSE CONTENTS

1. Free hand drawing study

1.1 Basic Architectural Graphics.

1.1.1 Line
1.1.2 Plane
1.1.3 Texture
1.1.4 Tone
1.1.5 Colour

1.2 **Geometrical forms**

1.2.1 Geometrical solid composition
1.2.2 Abstract three dimensional composition

The above exercise will be done by composing forms and planes for showing

(1) Symmetry and Asymmetry (2) Rhythm (3) Unity in diversity (4) Solid and Void composition.

1.3 **Anthropometrics and furniture sketches.**

1.3.1 Human dimensions and proportions
1.3.2 Residential furniture drawing with dimensions as per anthropometric

1.4 **Parts of building**

1.4.1 Sketches of door and window openings, columns, parapet, boundary wall of residential building.
1.4.2 Entrance door of restaurant and office
1.4.3 Entrance gate

2. Scaled drawing

1.5 Measured drawing of simple objects drawn in appropriate scale.
(Furniture, watchman cabin, garden shelter etc.)

N.B: Students are to complete the assignments in the classroom and will be regularly evaluated by the teacher.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Architecture : Form, Space, and Order	Francis D.K. Ching	Wiley
2.	Graphic Design for Architects: A manual for visual communication	Leland M. Roth	Routledge
3.	Element of Graphic Design	Alex W White	Allworth

BUILDING CONSTRUCTION (PR-III)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	4 hrs
Practical periods:	3P / week	Sessional:	25
Maximum marks:	50	End Semester Examination:	25

A. RATIONALE:

This course is designed to give basic inputs on building construction practical exposure which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

To develop technical drawing skills for producing building construction details and onsite construction practice.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Types of stone masonry (plan, elevation, section).	5
2	Different shapes and types of bricks	5
3	English bonds & wall junctions	5
4	Flemish bond & wall junctions	5
5	Rat-trap bond	5
6	Foundations in bricks	5
7	RCC foundations	5
8	Arches and its details	5
9	Details of different types of doors and windows	5
10	Details of RCC Staircase	5
11	Details of Pitched roof	5
12	Details of A.S, terrazzo, marble and tile flooring.	5
	Total:	**60**

D. COURSE CONTENTS

1. Building Construction

1.1. Types of stone masonry (plan, elevation, section).
1.2. Different shapes and types of bricks
1.3. English bonds & wall junctions.
1.4. Flemish bond & wall junctions.
1.5. Rat-trap bond.
1.6. Foundations in bricks.
1.7. RCC foundations.
1.8. Arches and its details.
1.9. Details of different types of doors and windows
1.10. Details of RCC Staircase
1.11. Details of Pitched roof

1.12. Details of A.S, terrazzo, marble and tile flooring.

NB: All the sheets are to be developed by the students in the studio & to be evaluated by the teacher.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Building construction	W.B.Mackey	Laxmi
2.	Building construction	Rangawala	Charotar Publication

SURVEYING PRACTICAL (PR-IV)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	45	Examination :	4 hrs
Practical periods:	3P / week	Sessional:	25
Maximum marks:	50	End Semester Examination:	25

A. RATIONALE:

This course is designed to give basic inputs on surveying practical exposure which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

On completion of the practical the students will be able to:

1.0 Chain Survey.
2.0 Compass Survey
3.0 Leveling
4.0 Contouring

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Chain Survey	15
2	Compass Survey	10
3	Leveling	10
4	Contouring	10
	Total:	**45**

D. COURSE CONTENTS

1. Chain survey

1.1 Do the Ranging of a line more than 100 Mt. Length and measuring its correct length applying chain corrections.
1.2 Take offsets of objects on both sides of line plotting the above details.
1.3 Explain how to overcome the obstructions in chaining in the following cases.
1.31 Vision free, but chaining obstructed (pond, river etc.).
1.3.2 Chaining free, vision obstructed (Raised ground, hills etc.).

2. Compass Survey

2.1 Set the instrument and how to take readings.
2.2 Find the bearings of line and applying check.
2.3 Find the angles.
2.4 Demonstrate the closed traversing of a small plot.
(Without interior details).

3. Leveling

3.1 Demonstrate the temporary adjustments of a dumpy level and reading the staff.
3.2 Find the exact level different between two stations visible from the centre of instrument station.
3.3 Demonstrate the fly leveling between two stations with three setting.

4. Contouring

Demonstrate the contouring of a small plot and plotting the contour by various methods (Direct & Indirect).

Sessional work:

1. Draw the layout of a small residential building.
2. Prepare site plan of an existing campus.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Surveying and Levelling	N.N. Basak	McGraw-Hill Education
2.	Text Book of Surveying	C.Venketramaiah	Universities Press
3.	Surveying	B.C. Punmia	Firewall Media

AutoCAD-I (PR-V)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	3rd
Total Period:	60	Examination :	4 hrs
Practical periods:	4P / week	Sessional:	25
Maximum marks:	50	End Semester Examination:	25

A. RATIONALE:

This course is designed to give basic inputs on the use of software on computer aided design and drafting practical exposure which are essential and prerequisite for studying architecture

B. OBJECTIVE:

This course trains the student to produce architectural drawings by using AUTOCAD software.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Introduction to AUTO CAD	5
2	Getting started	5
3	DRAW COMMANDS	5
4	EDIT COMMANDS	5
5	DISPLAY COMMANDS	5
6	UTILITY COMMANDS	5
7	LABLE COMMANDS	5
8	ENQUIRY COMMANDS	5
9	DRAWING AIDS	5
10	SPECIAL COMMANDS	5
11	HANDS ON	10
	Total:	**60**

D. COURSE CONTENTS

1.0 Introduction

1.1 State and compare AutoCAD with manual drafting

2.0 Getting started.

2.1 AutoCAD screen
2.2 Working platform
2.3 Methods of command entry
2.4 Coordinate system
2.5 Selection of Units
2.6 Selection of working area
2.7 Types of commands

3.0 Draw commands

3.1 Arc
3.2 Circle

3.3 Ellipse
3.4 Donut
3.5 Polygon
3.6 Line
3.7 Pline

4.0 EDIT COMMAND

ERASE,OOPS,TIRM,COPY,MOVE,OFFSET,ARRAY,BEAK,STRETCH,EXPLODE, MIRROR,FILLET,CHAMFER,PEDIT,EDIT,HATCH,U, SCALE.

5.0 DISPLAY COMMANDS

5.1 PAN
5.2 REDRAW
5.3 REGEN
5.4 ZOOM

6.0 UTILITY COMMANDS

6.1 End
6.2 LIMITS
6.3 QUIT
6.4 SAVE
6.5 UNITS

7.0 LABLE COMMANDS

7.1 DIMENSION
7.2 HATCH
7.3 TEXT

8.0 INQUIRY COMMAND

8.1 AREA
8.2 DIST
8.3 HELP
8.4 ID
8.5 LIST

9.0 DRAWING AIDS

9.1 OSNAP
9.2 TRAKING
9.3 SNAP

10.0 SPECIAL COMMANDS

10.1 BLOCK
10.2 INSERT

10.3 LAYER
10.4 LIME TYPE
10.5 LT SCALE
10.6 WB BLOCK

N.B: Students are to submit the practical records. They will be given assignment to draw simple geometrical drawings by utilizing these commands.

Learning Resources:			
Sl.No	**Title of the Book**	**Name of Authors**	**Name of Publisher**
1.	Mastering AutoCAD 2016 and AutoCAD LT 2016	George Omura	Sybex
2.	AutoCAD 2016® and AutoCAD LT® 2016: ESSENTIALS	ESSENTIALS	Sybex
3.	AutoCAD	Sham Tickoo	BPB Publications