

STATE COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA

TEACHING AND EVALUATION SCHEME FOR 6th Semester (AA)(w.e.f 2020-21)

Subject Number	Subject Code	Subject	Periods/week			Evaluation Scheme			
			L	T	P	Internal Assessment/ Sessional	End Sem Exams	Exams (Hours)	Total
Theory									
Th.1		-	-	-	-				
Th.2		-	-	-	-				
Th.3		-	-	-	-				
Th.4		-	-	-	-				
Practical									
Pr.1		Professional Training	-	-	25	100	100		200
Pr.2		Elective (any one) a. Remote sensing & GIS b. Revit Architecture c. Photoshop	-	-	3	25	50		75
Pr.3		Project Work Phase- II	-	-	8	350	100		450
Pr.4		Life Skill			2	25	-		25
		Student Centred Activities(SCA)		-	1	-	-	-	-
		<i>Total</i>	-	-	39	500	250	-	750
		Grand Total	-	-	39	500	250	-	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 6TH SEMESTER

For

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP.

(Effective FROM 2020-21 Sessions)



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

PROFESSIONAL TRAINING (Pr-I)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	6 th
Total Period:	250(2&1/2)months)	Examination :	
Theory periods:	25P / week	Internal Assessment:	100
Maximum marks:	200	End Semester Examination :	100

A. RATIONALE:

This course is designed to give basic inputs through real life exposure in architectural firms which are essential and prerequisite for studying architecture.

B. OBJECTIVE:

Exposure to the professional field is required for the student to mentally and technically prepare them to handle architectural consulting work, and gain practical experience.

After completion of the training students will attach importance to the subject which is being applied in the work situations.

C. PROCEDURE:

Students will be sent for two and half month to different architectural consulting firms and related industry and office (arrangement has to be made by HOD/training superintendent of the institute). Students will collect data and study about an ongoing live project of the office, will visit the construction site and will take photographs. They also required collecting data, site plan and conducting case study for their final project. At the end of the training they will face a jury for the final grand Viva-voice.

REMOTE SENSING AND GIS (PR-II) (Elective-1)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	6 th
Total Period:	75	Examination :	3 hrs
Theory periods:	5P / week	Internal Assessment/Sessional:	50
Maximum marks:	100	End Semester Examination :	50

A. RATIONALE:

This course is designed to give basic inputs about usages of RS and GIS which are essential and prerequisite for students of architecture.

B. OBJECTIVE:

The course is designed to develop surveying ability using RS and GIS.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Remote Sensing	30
2	Geographic Information System (GIS)	30
3	Global Positioning System (GPS)	15
Total:		75

D. COURSE CONTENTS

1.0 Remote Sensing

- 1.1 Definition & Concept of Remote sensing
- 1.2 Physics of remote sensing ----- Electromagnetic radiation , Radiation Law, Electromagnetic spectrum, Relation between wave length & frequency, Visible spectrum , Infrared micro waves, Interaction of earth features with EMR.
- 1.3 Aerial photography – scale of aerial photographs Height measurements, concept of stereo photography, concept of photogrammetric
- 1.4 Different platform used in remote sensing.
- 1.5 Different Sensors used in satellite remote sensing and working concept of sensor.
- 1.6 Details of Remote sensing satellites---IRS series land sat, Spot, Envisat, Quick Bird, IKONS, ORBVIEW, Geoeye, etc.
- 1.7 Digital characteristics of satellite image, concepts of spectral, spatial, Radio metric & Temporal Resolution
- 1.8 Digital Image Processing (D I P) Geometric correction of satellite image.
- 1.9 D I P—Enhancement technique of satellite image.
- 1.10 D I P—Unsupervised & supervised classification.
- 1.11 Fundamental concept of land features mapping from satellite image of different Resolution.

2.0 Geographic Information System

- 2.1 Definition and concept of GIS.
- 2.2 Concept of Database Management System, example of spatial and Attribute.
- 2.3 Concept & comparison between vector and raster data, raster/ vector conversion.
- 2.4 Basic features in spatial database generation—point, arc, (line) node & polygon, topology.
- 2.5 Concept of coverage, shape files and eco files.
- 2.6 Digitization method, weed tolerance, node snap, arc snap fuzzy tolerance, tic matching.
- 2.7 Identification of errors – under shoot, over shoot, intersection errors, missing or multiple label points in polygons etc.
- 2.8 Joining of spatial and attribute data.
- 2.9 Spatial analysis—Boolean operation, clipping, intersection, buffer analysis.
- 2.10 Surface modeling—contour/lattice generation, T I N formation, slop/ aspect determination, cross section / profile generation etc.
- 2.11 Attribute Editing ---1 lecture.
- 2.12 Use of GIS in surface features and real world database linking & modeling with respect to survey & mapping.

3.0 Global Positioning System (G P S)

- 3.1 Need of GPS based surveys and introduction to GPS
- 3.2 Earth Coordinate System: concept of latitude and longitude, fundamental of projection system, definition of datum
- 3.3 Concept and working of GIS
- 3.4 Sources of errors in GPS observation
- 3.5 Current & Future satellite based Navigation system
- 3.6 Concept and working of differential GPS

PRACTICAL

- 1.0 Scale determination of Aerial photography using (i) ground distance (ii) maps (iii) focal length / height formula.
- 2.0 Height measurement technique for A P.
- 3.0 Loading and display, changing of band combination & contrast of multispectral satellite image.
- 4.0 Image rectification with respect to existing Ground Control Points and existing maps.
- 5.0 Enhancement of satellite image and features (like road, river, bridge, etc) extraction from satellite image.
- 6.0 Creation of new shape files of any project area/ Digitization of features using points, lines, and polygons.
- 7.0 Attribute Database generation in D B F/ M S Access format.
- 8.0 Linking of spatial and Attribute database.
- 9.0 Contour map digitization and DEM /slope generation.
- 10.0 Map composition & statistics generation.

Syllabus coverage up to internal assessment

Chapters: 1 & 2

Learning Resources:			
Sl.No	Title of the Book	Name of Authors	Name of Publisher
1.	Remote Sensing and GIS	Basudeb	
2	Remote Sensing and GIS Image Interpretation	Lillesand	
3	Basic of Remote Sensing and GIS	S. Kumar	

REVIT ARCHITECTURE (PR-II) (Elective-2)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	6 th
Total Period:	75	Examination :	3 hrs
Theory periods:	5P / week	Internal Assessment:	50
Maximum marks:	100	End Semester Examination :	50

A. RATIONALE:

This course is designed to give basic inputs about use of Revit Architecture which are highly beneficial tool for drafting and designing.

B. OBJECTIVE:

The course is designed to take advantage of latest and powerful BIM software

C. Topic wise distribution of periods:

SI. No.	Topics	Period
1	Getting Started with Revit Architecture	05
2	Using Basic Building Components-I	05
3	Using the Editing Tools	05
4	Working with Datum and Creating Standard Views	05
5	Using Basic Building Components-II	05
6	Using Basic Building Components-III	05
7	Adding Site Features	05
8	Using Massing Tools	05
9	Adding Annotation and Dimensions	05
10	Creating Project Details	05
11	Creating Drawing Sheets	05
12	Creating 3D Views	05
13	Project	15
Total:		75

D. COURSE CONTENTS

1.0 Getting Started with Revit Architecture

- 1.0 Introduction.
- 2.0 Starting a new project.
- 3.0 Setting units.
- 4.0 Snap settings.
- 5.0 Saving a project.
- 6.0 Using Zoom tools.

2.0 Using Basic Building Components-I

- 2.1 Creating walls.

- 2.2 Adding doors.
- 2.3 Adding windows.

3.0 Using the Editing Tools

- 3.1 Moving and coping elements.
- 3.2 Trim and extend.
- 3.3 Rotating elements.
- 3.4 Mirroring elements.
- 3.5 Creating an offset.
- 3.6 Creating an array of elements.
- 3.7 Matching elements.
- 3.8 Aligning elements.
- 3.9 Split element.
- 3.10 Grouping elements.
- 3.11 Scaling elements.

4.0 Working with Datum and Creating Standard Views

- 4.1 Working with levels.
- 4.2 Working with grids.

5.0 Using Basic Building Components-II

- 5.1 Creating Floors.
- 5.2 Creating roofs.
- 5.3 Creating ceilings.

6.0 Using Basic Building Components-III

- 6.1 Adding components.
- 6.2 Adding Stairs.
- 6.3 Creating Railings.
- 6.4 Creating ramps.
- 6.5 Adding curtain grids.

7.0 Adding Site Features

- 7.1 Creating top surface.
- 7.2 Splitting a top surface.
- 7.3 Merging top surfaces.
- 7.4 Adding property line.
- 7.5 Creating building pads
- 7.6 Adding side components.

8.0 Using Massing Tools

- 8.1 Creating an extrusion.
- 8.2 Creating a revolved geometry.
- 8.3 Creating a sweep.
- 8.4 Creating a blend.

9.0 Adding Annotation and Dimensions

- 9.1 Adding tags.
- 9.2 Adding dimensions.

10.0 Creating Project Details

- 10.1 Creating callout view.
- 10.2 Adding text notes.
- 10.3 Creating a model text.

11.0 Creating Drawing Sheets

- 11.1 Adding a drawing sheet to a project.

12.0 Creating 3D Views

- 12.1 Creating orthographic view.
- 12.2 Generating perspective view.

13.0 Project:

Syllabus coverage up to internal assessment

Chapters: 1, 2, 3, 4, 5, 6 & 7

Learning Resources:			
Sl.No	Title of the Book	Name of Authors	Name of Publisher
1	Autodesk Revit Architecture	Sham Tickoo	
2	Introducing Revit Architecture	Eddy Krygiel, Greg Demchak, TatjanaDzambazova	
3	Mastering Autodesk Revit Architecture	KreigielVandezande	

PHOTOSHOP(PR-II) (Elective-3)

Name of the Course: Diploma in Architecture Assistantship			
Course code:		Semester	6 th
Total Period:	45	Examination :	3 hrs
Theory periods:	3P / week	Internal Assessment:	25
Maximum marks:	75	End Semester Examination :	50

A. RATIONALE:

This course is designed to give basic inputs about use of photoshop which are highly beneficial tool for preparation of presentation drawings.

B. OBJECTIVE:

The course is designed to develop presentation idea using Photoshop software to develop the

C. Topic wise distribution of periods:		
Sl. No.	Topics	Period
1	Introduction to Photoshop	10
2	Introduction to tools	10
3	Working with layers	10
4	Creating shapes and mat painting	05
5	Transforming and retouching	05
6	Colour and tonal adjustments	05
7	Filters	10
8	Text	10
9	Project	10
	Total:	75

graphical presentation skill of the students.

D. COURSE CONTENTS

1.0 Introduction to Photoshop

- 1.1 What is Photoshop?
- 1.2 System requirements
- 1.3 Image size and resolution
- 1.4 Creating working space
- 1.5 Scanning images
- 1.6 Saving images
- 1.7 Opening images
- 1.8 Importing images
- 1.9 Placing files

2.0 Introduction to tools

- 2.1 Tool box
- 2.2 Tool option bars

- 2.3 Tools presets
- 2.4 Selection tools
- 2.5 Selection menu

3.0 Working with layer

- 3.1 What is a layer?
- 3.2 Blending Modes
- 3.3 Features of an adjustment layer
- 3.4 Working with layers

4.0 Creating shapes and mat painting

- 4.1 Painting
- 4.2 Drawing
- 4.3 Pen tool
- 4.4 Work path
- 4.5 Painting tools
- 4.6 Brush presets

5.0 Transforming and retouching

- 5.1 Cropping images
- 5.2 Working with canvas size
- 5.3 Transforming objects
- 5.4 Working with clone stamp tools
- 5.5 Retouching the image

6.0 Colour and tonal adjustments

- 6.1 Colour corrections
- 6.2 Sharpening images
- 6.3 Colour models
- 6.4 Colour gamuts
- 6.5 Adjusting colour display for cross-platform
- 6.6 Variation
- 6.7 Changing Screen mode

7.0 Filters

- 7.1 Distorting with liquefy command
- 7.2 Pattern maker
- 7.3 Filter Gallery
- 7.4 Filters

8.0 Text

- 8.1 Text tool
- 8.2 Creating text effects using filters

9.0 Working with channels and masking

- 9.1 Channels and bit depth
- 9.2 Converting between bit depths
- 9.3 Converting between modes
- 9.4 Features of mask
- 9.5 Working with alpha-channels

10.0 Project

- 10.1 Prepare architectural presentation drawings of
- 10.2 Building lay-out plan
- 10.3 Building plan with furniture lay-out
- 10.4 Sections
- 10.5 Elevations
- 10.6 Views

N.B.- Students are to do the entire job in the computer lab under the guidance of the teacher and shall be evaluated regularly.

Syllabus coverage up to internal assessment

Chapters: 1, 2, 3, 4&5

Learning Resources:			
Sl.No	Title of the Book	Name of Authors	Name of Publisher
1.	Photoshop Bible	Deke McClelland	
2	Adobe Photoshop class room in a book	Adobe	
3	Photoshop	RomanielloKloskowski	
4	Photoshop down dirty Tricks	Scott Kelby	
5	How to do everything with Photoshop a beginner's guide	Colin Smith	

Pr3. PROJECT Phase - II

Name of the Course: Diploma in Architectural Assistantship			
Course code:		Semester	6 th
Total Period:	120	Examination	
Lab. periods:	8 P / week	Sessional	350
Maximum marks:	450	End Sem Examination	100

RATIONALE

Students' Project Work aims at developing innovative skills in the students whereby they apply the knowledge and skills gained through the course covered in many subjects and Labs, by undertaking a project. The prime emphasis of the project work is to understand and apply the basic knowledge of the principles of Mechatronics engineering and practices in real life situations, so as to participate and manage a large Mechatronics engineering projects, in future. Entire Project spreads over 5th and 6th Semester. Part of the Project covered in 5th Semester was named as *Project Phase-I* and balance portion to be covered in 6th Semester shall be named as *Project Phase-II*.

OBJECTIVES

After undergoing the Project Work, the student will be able to:

- Implement the theoretical and practical knowledge and skills gained through various subjects/courses into an application suitable for a real practical working environment, preferably in an industrial environment.
- Develop software packages or applications and implement these for the actual needs of the community/industry.
- Identify and contrast gap between the technological knowledge acquired through curriculum and the actual industrial need and to compensate it by acquiring additional knowledge as required.
- Carry out cooperative learning through synchronous guided discussions within the class in key areas, asynchronous document sharing and discussions, as well as prepare collaborative edition of the final project report.
- To achieve real life experience in Project design.
- To develop the skill of writing Project Report

Project Phase-I and Phase-II

The Project work duration covers 2 semesters(5th and 6th sem). The Grouping of students, selection of Project, assignment of Project Guide to the Group was done in the beginning of 5th semester under Project Phase-I. The students were allowed to study literature, any existing

system and then define the Problem/objective of the Project. Preliminary work and Design of the system also have to be complete in Phase-I. Development may also begin in this phase. Project Milestones are to be set so that progress can be tracked .

In Phase-II Development, Testing, Documentation and Implementation have to be complete. Project Report have to be prepared and complete in Phase-II. All Project reports should be organized uniformly in proper order, irrespective of group. Teacher Guides can make suitable alteration in the components of Task and schedule.

At the end of Project Phase-II in 6th semester there shall be one presentation by each group on whole Project work undertaken by them.

A suggestive criterion for assessing student performance by the external (preferably person from industry) and internal (teacher) examiner is given in table below:

Sl. No.	Performance Criteria
1.	Selection of project assignment
2.	Planning and execution of considerations
3.	Quality of performance
4.	Providing solution of the problems or production of final product
5.	Sense of responsibility
6.	Self expression/ communication/ Presentation skills
7.	Interpersonal skills/human relations
8.	Report writing skills
9	Viva voce

The teachers are free to evolve other criteria of assessment, depending upon the type of project work.

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organisations to such an exhibition.

The Project Report need to be prepared as per standard format and following is the indicative format. The Teacher Guide may make minor alteration keeping the sense in tact.

Organization of Project Report

1. Cover page:

It should contain the following (in order)

- (i) Title of the Project
- (ii) “Submitted in partial fulfillment of the requirements for the Diploma in <Branch Name>”
- (iii) By Name of the Student(s)
- (iv) Logo of the Institution
- (v) Branch Name/Depart Name and Institution Name with Address

- (vi) Academic Year
- 2. 1st Inner page
 - Certificate:
 - It should contain the following
 - “This is to certify that the work in this Project Report entitled <Project Title> by <Name of student(s)> has been carried out under my supervision in partial fulfillment of the requirements for the Diploma in <Branch Name>” during session <session > in <Branch /Department Name> of <Institute name> and this work is the original work of the above student(s).
 - Seal and signature of the Supervisor/Guide with date
- 3. 2nd Inner Page
 - Acknowledgement by the Student(s)
- 4. Contents.
- 5. Chapter wise arrangement of Reports
- 6. Last Chapter: Conclusion
 - It should contain
 - (i) Conclusion
 - (ii) Limitations
 - (iii) Scope for further Improvement
- 7. References

Pr-4 LIFE SKILL
(Common to All Branches)

Practical	2 Periods per week	Sessional	25 Marks
Total Periods	30 Periods	Total Marks	25 Marks

Objective: After completion of this course the student will be able to:

- Develop team spirit i.e. concept of working in team
- Apply problem solving skills for a given situation
- Use effective presentation techniques
- Apply task management techniques for given projects
- Enhance leadership traits
- Resolve conflict by appropriate method
- Survive self in today's competitive world
- Face interview without fear

DETAIL CONTENTS:

1. SOCIAL SKILL

Society, Social Structure, Develop Sympathy and Empathy
Swot Analysis – Concept, How to make use of SWOT
Inter personal Relation: Sources of conflict, Resolution of conflict ,
Ways to enhance interpersonal relation

2. PROBLEM SOLVING

Steps of Problem solving:

- Identify and clarify the problem,
- Information gathering related to problem,
- Evaluate the evidence,
- Consider alternative solutions and their implications,
- Choose and implement the best alternative,
- Review
- Problem solving techniques:

1) Trial and error, 2) Brain storming, 3) Lateral (Out of Box) thinking

3. PRESENTATION SKILL

Body language , Dress like the audience
Posture, Gestures, Eye contact and facial expression. STAGE FRIGHT,
Voice and language – Volume, Pitch, Inflection, Speed, Pause
Pronunciation, Articulation, Language, Practice of speech.
Use of AV aids such as Laptop with LCD projector, white board etc.

4. GROUP DISCUSSION AND INTERVIEW TECHNIQUES

Group Discussion:

Introduction to group discussion, Ways to carry out group discussion,
Parameters— Contact, body language, analytical and logical thinking,
decision making

Interview Technique :

Dress, Posture, Gestures, facial expression, Approach
Tips for handling common questions.

5. WORKING IN TEAM

Understand and work within the dynamics of a groups.

Tips to work effectively in teams,

Establish good rapport, interest with others and work effectively with them
to meet common objectives,

Tips to provide and accept feedback in a constructive and considerate way ,

Leadership in teams, Handling frustrations in group.

6. TASK MANAGEMENT

Introduction, Task identification, Task planning ,
organizing and execution, Closing the task

PRACTICAL

List of Assignment: *(Any Five to be performed including Mock Interview)*

1. SWOT analysis:-

Analyse yourself with respect to your strength and weaknesses, opportunities and threats.

Following points will be useful for doing SWOT.

- a) Your past experiences,
- b) Achievements,
- c) Failures,
- d) Feedback from others etc.

2. Solve the True life problem assigned by the Teacher.

3. Working in a Team

Form a group of 5-10 students and do a work for social cause e.g. tree plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slum area, social activities like giving cloths to poor etc.(One activity per group where Team work shall be exhibited)

4. Mock Interview

5. Discuss a topic in a group and prepare minutes of discussion.

6. Deliver a seminar for 5 minutes using presentation aids on the topic given by your teacher.

7. Task Management

Decide any task to be completed in a stipulated time with the help of teacher. Write a report considering various steps in task management (with Break up into sub tasks and their interdependencies and Time)

Note: -1. Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic.

Note: -2. The following Topics may be considered for Seminar/GD in addition to other Topics at the discretion of the Teacher.

(Comparison with developed countries, Occupational Safety, Health Hazard, Accident & Safety, First-Aid, Traffic Rules, Global Warming, Pollution, Environment, Labour Welfare Legislation, Labour Welfare Acts, Child Labour Issues, Gender Sensitisation ,Harassment of Women at Workplace)

METHODOLOGY:

The Teacher is to explain the concepts prescribed in the contents of the syllabus and then assign different Exercises under Practical to the students to perform.

Books Recommended:-

Sl.No	Name of Authors	Title of the Book	Name of the Publisher
01	E.H. Mc Grath , S.J	Basic Managerial Skills for All	PHI
02	Lowe and Phil	Creativity and problem solving	Kogan Page (I) P Ltd
03	Adair, J	Decision making & Problem Solving	Orient Longman
04	Bishop , Sue	Develop Your Assertiveness	Kogan Page India
05	Allen Pease	Body Language	Sudha Publications Pvt. Ltd.