Lok Jagruti Kendra University
University with a Difference

Diploma in Architectural Assistantship

LJ Polytechnic

Course Code:025080501

Working Drawings

Programme / Branch Name			Diploma in Architectural Assistantship			
Course Name	Working Drawings				**Course Code**	025080501
Course Type	HSSC	BSC	ESC	PCC	OEC	PEC

Legends: HSSC: Humanities and Social Sciences Courses BSC: Basic Science Courses
ESC: Engineering Science Courses PCC: Program Core Courses
OEC: Open Elective Courses PEC: Program Elective Courses

1. Teaching and Evaluation Scheme

Teaching Hours / Week / Credits				**Evaluation Scheme**			
L	**T**	**P**	**Total Credit**	**CCE**	**SEE (Th)**	**SEE (Pr)**	**TOTAL**
0	0	12	6	100	-	200	300

Legends:
L: Lectures T: Tutorial P: Practical
CCE: Continuous & Comprehensive Evaluation
SEE (Th): Semester End Evaluation (Theory)
SEE (Pr): Semester End Evaluation (Practical)

2. Prerequisites

- ✓ Measurements of doors, windows, etc. Basic structural elements.
- ✓ Proper use of AutoCAD software.
- ✓ Knowledge of line intensity for preparing presentation and technical drawings.

3. Rationale

The knowledge and skill of preparing working drawings are very essential for an architect. Designing a building is one thing and proper knowledge of actual execution of the same on-site is another. Working drawings consist of basic drawings and detailed drawings. The basic set includes all plans, sections & elevation with accurate dimensions while the detailed drawings include enlarged details of kitchen, toilets, doors & windows, staircase, etc. with accurate dimensions. A foundation plan and line-out drawing with center-line dimensions which is part of the basic set of drawings is essential for the line-out of the building on site. Most importantly, the architect gets an opportunity to apply all his knowledge and creative skills for working out architectural details as a part of detail drawings. All finishes are also specified in these detailed drawings. These drawings also include all dimensions including wall thickness, heights, levels, etc. All these are put together to facilitate in constructing the building on-site exactly according to its design. Thus working drawings help site engineers to understand how a building is actually constructed on-site. This course is designed given the above outlook and for developing the competency mentioned below, accordingly.

4. Objectives

- ✓ Synchronizing the entire building construction process for the realization of a conceptual built.
- ✓ An environment with respect to material & technology with the help of architectural working drawings.
- ✓ Understanding each aspect and stages of the building and construction system and requirement of drawings for the execution of the same at different stages.
- ✓ The understanding magnitude and relevance of details in construction.
- ✓ Exploration of building materials and technology in construction.

5. Contents

Unit No.	Topics	Sub-Topics	Learning Outcomes	% Weightage	Hours
1.	**Design Development and its Finalization for Working Drawings**	1.1. Introduction and study of working drawings of housing projects as follows, study of a set of working drawings prepared by a practicing architect 1.2. Study of 'Working Drawings' prepared by students of architecture degree & diploma colleges through student's visits and/or presentations by experts from both industry and other institutes. 1.3. Site visits to on-going housing construction sites. 1.4. The basic building unit drawings should be drawn to appropriate scales e.g. 1:50 or 1:100 (not odd scales like 1:40 or 1:75). However such decisions are best left at the discretion of concerned faculty members.	• Select a building unit/s from the previous semester's housing design project or select any given building unit for preparing a complete set of working drawings. • Develop the design of the selected/given building unit with respect to materials of construction and finishes. • Finalize the structure of the building (with the help of a structural consultant or applied mechanics faculty of your institute), e.g. wall thicknesses in case of the load-bearing structure and approximate column locations and their sizes in case of the frame structure. • Draw all the drawings to a scale of 1:50 or any convenient scale.	10	24
2.	**Preparation of Site Layout with Necessary Details**	2.1. Site layout including building units, roads and landscaped areas are drawn clearly without rendering. 2.2. The drawing format for preparing working drawings, standardized, complete with borderline, notes,	• Draw the site layout to a scale of 1:200 or any appropriate scale. • Prepare a detailed layout plan showing all housing units and mark out the housing unit selected for working drawings	50	60

		revision table and name-plate. 2.3. Draw essential site details like compound wall section, UGWT any one landscape / hard paving detail.	separately (should be removed – a great degree of details will be required, distances amongst all units, compound walls, common plot, etc. this will make it more complex). • Prepare site drainage and water supply plan.		
3.	**Preparation of all Basic Drawings**	3.1. All plans (as applicable), 3.1.1. Foundation plan 3.1.2. Grid plan 3.1.3. All floor plans 3.1.4. Terrace plan 3.2. All elevations include (as applicable), 3.2.1. North elevation 3.2.2. South elevation 3.2.3. West elevation 3.2.4. East elevation 3.2.5. Any other 3.3. All sections include (as applicable), 3.3.1. Minimum one section through toilets 3.3.2. Minimum one section through the staircase 3.3.3. Minimum two other sections (Note: Sections should be drawn with the aim to show all the details of the designed building and hence should be cut accordingly).	• Draw plans at all levels • Draw all elevations • Draw all sections • Develop all the basic drawings with all necessary dimensions, levels, material finishes, specifications and notes. • Cross-check all plans, elevations and sections for any missing architectural element or detail and rectify the same if necessary. • Draw all the above drawings in a standard drawing format	20	48
4.	**Preparation of all Detail Drawings**	4.1. All detailed drawings including at least the following, 4.1.1. Toilet details 4.1.2. Kitchen details	• Draw all the detailed drawings in a standard drawing format. • Write specifications, notes	10	24

		4.1.3. Door/Window details 4.1.4. Staircase details 4.1.5. Railing details 4.1.6. Flooring details 4.1.7. Electrical layout 4.1.8. House drainage layout 4.1.9. Any other (All detailed drawings should be drawn to a scale of 1:20 or 1:25. However some of the more intricate details should be drawn to an appropriate enlarged scale. All details are designed and worked out individually by the students under the guidance of the faculty. Detail drawings should be co-related with the basic drawings before finalization.)	and instructions wherever necessary • Specify the make, sizes and specifications of all materials, fixtures and finishes on the drawing		
5.	**Drawing all Working Drawings on Computer**	5.1. Use the latest version of CAD software to prepare a working drawing. 5.2. Documentation of the entire set of working drawings should be done to present the same for securing placement for office training in the sixth semester	• Draw all the basic drawings on a computer with the help of CAD software. However, preparing all detailed drawings with CAD is best left at the discretion of the concerned faculty member and should be considered optional. Document the entire set of working drawings.	10	12
				Total Hours	**168**

6. List of Practicals / Exercises

The practicals/exercises have been properly designed and implemented in an attempt to develop different types of skills, so that students can acquire the competencies/programme outcomes. Following is the list of practicals/exercises.

Sr. No.	Practicals / Exercises	Key Competency	Hours
1.	Design and develop a plan for a given building's specification and its finalization for working drawings.	Presentation and working drawing plan difference	24
2.	Prepare site layout with necessary details for given buildings specification	Working site layout with plumbing, etc.	60
3.	Prepare all basic drawings for given building specifications.	Plan, sections and elevations in working drawing format	48
4.	Prepare all detail drawings for given buildings specification	All the working details	24
5.	Drawing all basic working drawings on the computer for given buildings specification	Use of AutoCAD software	12
		Total Hours	**168**

7. Reference Books

1) 100 Of The World's Best Houses 200 Houses
2) 21st Century Houses 150 Of The World's Best
3) 21st Century Sustainable Home
4) Abd within the Range of Architecture Vol. I
5) Architects Data,4/E
6) Architect's Drawing A Selection Of Sketches-
7) Architects Pocket Book,4/E
8) Architectural Details 2003 (P65) Architectural Drawings Construction &
9) Design(E68)
10) Architectural Finishes In The Built Environment
11) Architectural Thought The Design Process
12) Architectural Annual 2008
13) Architecture Competition Annual
14) Urban Housing Forms
15) Window Systems For High-Performance Buildings

8. Open Sources (Website, Video, Movie)

1) https://www.bluentcad.com/blog/the-importance-of-specific-working-drawings-in-residential-buildings/
2) https://www.pearsonhighered.com/assets/samplechapter/0/1/3/2/0132740648.pdf
3) https://www.bibliocad.com/en/library/residence-complete-working-drawing_67133/