CURRICULUM STRUCTURE

V Semester Scheme of Studies - Diploma in Architecture Assistantship [C-21]

Pathway	Course Category / Teaching Department	Course Code	Pathway Title	Hours per Semester			Total contact hrs	Credits	CIE Marks		SEE-1 Marks (Theory)		SEE-2 Mark (Practical)		Total Marks	Min Marks for Passing (including CIE	Assigned Grade	Grade Point	SGPA and
				L	T	P			Max	Min	Max	Min	Max	Min					
Programme Specialization Pathway																			
1	ES/AR Specialization pathways in emerging areas Student may select any one specialization	**1451**	Architectural Design and Working Drawing	128	64	384	576	24	240	96	60	24	100	40	400	160			
		1452	Interior Detailingand Quantity Surveying	128	64	384	576	24	240	96	60	24	100	40	400	160			
		1453	Rural and Urban Planning	128	64	384	576	24	240	96	60	24	100	40	400	160			
		1454	Sustainable Architecture and Alternate Construction Techniques	128	64	384	576	24	240	96	60	24	100	40	400	160			
Science and Research Pathway				L	T	P	Total	Credit	CIE Marks		SEE Marks								
									Max	Min	Max		Min						
2	BS/SC/AR Specialization pathway in Science and Research (Student need to take all four papers in this pathway)		Paper 1-Applied Mathematics	64	32	0	96	6	50	20	50		20		100	40			
			Paper 2 – Applied Science	64	0	64	128	6	50	20	50		20		100	40			
			Paper 3 – Research Methodology	64	0	64	128	6	50	20	50		20		100	40			
			Paper 4 – Technical Writing	48	16	64	128	6	60	24	40		16		100	40			
			Total	240	48	192	480	24	210	84	190		76		400	160			
Entrepreneurship Pathway																			
3	ES/AR		Entrepreneurship and Start up	128	64	384	576	24	240	96	160		64		400	160			

L:- Lecture T:- Tutorial P:- Practical BS- Basic Science:: ES-Engineering Science:: SC: Science , I: Integrated

Note : In V Semester student need to select any one of the pathways consisting of 24 credits, Students can continue their higher education irrespective of the pathways selected

Government of Karnataka
Department of Collegiate and Technical Education
JSS Polytechnic for the Differently Abled (Autonomous)

ARCHITECTURAL DESIGN & WORKING DRAWING

Programme	Architecture Assistantship	**Semester**	V
Course Code	**1451**	**Type of course** L:T:P	128:64:384 (8:4:24)
Specialization	**Architectural Design & Working Drawing**	**Credits**	24
CIE Marks	240	**SEE Marks**	160

Introduction:

Architectural design is a discipline that focuses on covering and meeting the needs and demands, to create living spaces using certain design elements and creativity. When designing a building one should make analysis on site requirements and resources always keeping in mind aesthetics, technical aspects of construction and functions of design. This studio based course synthesizes the knowledge gained from previously learned courses and is in learning and practice of Architecture. This course will engage in using conventional methods and linear processes of design to more exploratory nonlinear methods. Also, knowledge of developing working drawings and estimation is necessary for any individual to practice architecture. The objective is to train an individual to work in all the stages of design and execution of a project.

Pre-requisite

Basic knowledge of architectural drawing and presentation techniques.

Course Cohort Owner: A Course Cohort Owner is a faculty from the core discipline, who is fully responsible for one specialized field of study and the cohort of students who have chosen to study that specialized field of study.

Guidelines for Cohort Owner

1. Each Specialized field of study is restricted to a Cohort of 20 students which could include students from other relevant programs.
2. One faculty from the Core Discipline shall be the Cohort Owner, who for teaching and learning in allied disciplines can work with faculty from other disciplines or industry experts.
3. The course shall be delivered in boot camp mode spanning over 15 weeks of study, weekly developmental assessments and culminating in a mini capstone.

4. The industry session shall be addressed by industry subject experts (in contact mode/online / recorded video mode) in the discipline only.
5. The cohort owner shall be responsible to identify experts from the relevant field and organize industry session as per schedule.
6. Cohort owner shall plan and accompany the cohort for any industrial visits.
7. Cohort owner shall maintain and document industrial assignments, weekly assessments, practices and mini project.
8. The cohort owner shall coordinate with faculties across programs needed for their course to ensure seamless delivery as per time table
9. The cohort owner along with classroom sessions can augment or use supplementary teaching and learning opportunities including good quality online courses available on platforms like Karnataka LMS, Infosys Springboard, NPTEL, Unacademy, SWAYAM , etc.
10. Cohort owner shall guide the cohorts for the selection and execution of mini project.

Course outcome: A student should be able to

CO 1	Distinguish the principles and viewpoints of Architectural planning through works of master architects.
CO 2	Identify building bye-laws, zoning regulations and process involved in site analysis.
CO 3	Design a public building, meeting all the needs and demands of living spaces Combining aesthetics and technical aspects.
CO 4	Analyze and prepare structural drawings of various components of building.
CO 5	Develop all necessary Architectural, working drawings and 3D views required for Presentation and execution of the design.
CO 6	Estimate the quantities of materials and work involved in Architectural Project.

DETAILED COURSE PLAN

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 1 , students will be able to,** • Summarize the architecture philosophies of foreign architects during 20th century. • Sketch and explain the works of modern master architects.							
1	1	1	1	Introduction of **Frank Lloyd Wright** and his works. Study Falling water. **Audio - Video Presentation.**	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
	1	1	2	Introduction of **Le Corbusier** and five principles of Architectural design. Study Villa Savoye and Mill Owners Association building. **Audio - Video Presentation**	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
	1	1	3	Introduction of **Mies van der Rohe** and his works. Study Farnsworth house. **Audio - Video Presentation.**	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
	1	1	4	Introduction of **Zaha Hadid** and her works Study London Aquatic center and Vetra fire station. **Audio - Video Presentation.**	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
		1	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
		1	6	**Industry class and assignment** • **Presentation on projects by professionals**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 2 , students will be able to,** □ Evaluate thoughts and Philosophies of Indian architects during 20th Century. □ Sketch and explain the works of modern master architects.							
2	1	1	1	**Peer Review on industrial assignment**		4		Introduction of **Louis Kahn** and design philosophy, Study IIM Ahmadabad. Prepare a sheet on the Architect and the works mentioned.	2		1
	1	1	2	Introduction of **Charles Correa** and design philosophy. Study Kanchanjunga Apartments and Gandhi Smarak Sangrahalaya, Ahmedabad.	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
	1	1	3	Introduction of **Laurie Baker,** characteristics of his design, cost effective energy efficient architecture. Study of Centre for development studies in Trivandrum.	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
	1	1	4	Introduction of **B V Doshi, c**haracteristics of his design, Study IIM Bangalore.	1		3	Prepare a sheet on the Architect and the works mentioned.	1		2
		1	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
		1	6	**Industry class and assignment** • **Presentation on projects by professionals**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 3 , students will be able to,** _ Identify the various aspects of Zoning and building bye-laws. _ Identify various building bye laws given by local authority. □ Analyze and Calculate Floor Area Ratio.							
3	2	1,2,3	1	**Peer Review on industrial assignment**		4		Bye-Laws: Introduction, importance of byelaws, objectives of byelaws. Visit Office of local authority which regulates bye laws of your town.	2		1
	2	1,2,3	2	**Set Back**: Introduction and its importance, objectives. **Light plane**: Introduction and its objectives. Collect bye-laws of your town from authority/Architects office and identify set back required for various buildings and road width and develop a Table. Develop sketches and sectionshowing light plane.	1		3	Visit a residential building and measure its set-back and identify if set-back of the building are appropriate as per bye-laws.	1		2
	2	1,2,3	3	FSI: Floor space index, Introduction and importance. FAR: Floor area ratio, Introduction and importance. Prepare a report on FSI for different buildings as mention in your local bye laws.	1		3	Understand how Built up area, carpet area, Floor area ratio is calculated, for some case study. Determine all mentioned above for at least 3 assumed-setups.	1		2
	2	1,2,3	4	Zoning regulations: importance and principles of zoning, Land use, Road systems/ urban roads, Recreational spaces. Prepare maps showing different zones of your town and mark primary, secondary and tertiary roads and recreational spaces like parks and play grounds.	1		3	Make Power point presentation on all the drawings, observations and maps made throughout the week.	1		2
	2	1,2,3	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	2	1,2,3	6	**Industry class and assignment** • **Bye laws and CDP**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 4 , students will be able to,** • Identify the project, Perform Case study with sketches, drawings and Photographs, identify Space requirements. • Select site, collect site data and produce site analysis. • Understand and develop site plan for the project.							
4	3	2,3	1	**Peer Review on industrial assignment**		4		Some of the Design Topics are suggested below. The students may choose any one of the following projects. Hotel □ Restaurant □ Hostel □ Health club/ Recreational club □ Secondary school.	2		1
	3	2,3	2	Live Case study, choose a suitable project in your town, visit and understand concept development, planning, develop drawings, photographs (document project).	1		3	Live Case study, choose a suitable project in your town, visit and understand concept development, planning, develop drawings, photographs (document project).	1		2
	3	2,3	3	Prepare presentation on all analysis done and drawings developed.	1		3	Prepare presentation on all analysis done and drawings developed.	1		2
	3	2,3	4	Site Selection: Examine multiple options and assess their relative advantages suitable for your project.	1		3	Select a location that meet your project requirements. Also, site should not have limitations that may compromise key design aspects.	1		2
	3	1,2,3	5	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
	3	1,2,3	6	**Industry class and assignment** • **Presentation on projects by professionals**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 5 , students will be able to,** • Identify the project, Perform Case study with sketches, drawings and Photographs, identify Space requirements. • Select site, collect site data and produce site analysis. • Understand and develop site plan for the project.							
5	3	1,2,3,7	1	**Peer Review on industrial assignment**		4		Site Data collection: Visit site, measure site boundaries and road width, collect following data: Ownership details, Bye-laws, Contours, Climate data, Public utility services, Vegetation, Sub surface,Cultural, land use, Linkages and transit roads, Natural features-water body, mountains etc.	2		1
	3	1,2,3,7	2	Site analysis. Conduct discussion and Analyze information on data collected. Develop presentation graphs, sketches etc. Draw site plan and determine permissible area for development as per local bye-laws.	1		3	Site analysis. Conduct discussion and Analyze information on data collected. Develop presentation graphs, sketches etc. Draw site plan and determine permissible area for development as per local bye-laws.	1		2
	3	1,2,3,7	3	Site planning: Introduction, importance of site planning. Zoning, vehicular and pedestrian circulation, massing and services.	1		3	Site planning: Introduction, importance of site planning. Zoning, vehicular and pedestrian circulation, massing and services.	1		2
	3	1,2,3,7	4	Develop a zoning plan representing zones for all requirements of the project.	1		3	Develop a zoning plan representing zones for all requirements of the project	1		2
	3	1,2,3	5	**CIE 1 – Written and Practice Test**	4			**Assessment Review and corrective action**			**3**
	3	1,2,3	6	**Industry class and assignment** • **Presentation on projects by professionals**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 6 , students will be able to,** Develop Parking layout for the design project. Design landscaping using appropriate landscaping elements as per the site conditions. Analyze and apply time saver standards of building design and prepare site plan and building plan of the project.							
6	3	1,3,7	1	**Peer Review on industrial assignment**		4		Parking standards. Identify standard dimensions for 4wheeler and 2 wheeler parking. Turning radius, types of surfaces used in parking layout. Prepare sketches for the same.	1		2
	3	1,3,7	2	Landscaping, Landscape design, objectives and necessity, Principles of landscape design	2		2	Elements of landscape design, materials used in landscaping, Types of garden Design- Japanese Garden, Mughal Gardens, French garden. Prepare sheets on types of gardens with at least one example for each garden.	1		2
	3	1,3,7	3	Trees, shrubs and ground covers- identify any 5 and Explore their suitable growth conditions, aesthetic and design values, and scientific names. Using the principles and graphical representation develop landscaping for the site plan of taken design project.	1		3	Identify suitable Time saver standards, Anthropometrical data required for the design. Develop site layout, building plan as per standards and guidelines given in bye laws.	1		2
	3	1,3,7	4	Develop a detailed plan with appropriate openings, space demarcation, and proper circulation.	1		3	Develop a detailed plan with appropriate openings, space demarcation, and proper circulation.	1		2
	3	1,3,7	5	**Developmental Assessment**				Assessment Review and corrective action			3
	3	1,3,7	6	**Industry class and assignment** • **Virtual tour / documentary movie on landscape projects.**	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 7 , students will be able to,** Design plan and building form with best circulation and space design. Design various requirements of the project with fusion of aesthetics and technical aspects. Design and develop building section and elevation.							
7	3	3,5,7	1	**Peer Review on industrial assignment**		4		Produce Site plan with proper demarcation of parking space, vehicular and pedestrian circulation in site and Landscaping with building roof plan.	2		1
	3	3,5,7	2	Produce Site plan with proper demarcation of parking space, vehicular and pedestrian circulation in site and Landscaping with building roof plan. Represent various materials with suitable hatch andgraphical representation.	1		3	Produce Site plan with proper demarcation of parking space, vehicular and pedestrian circulation in site and Landscaping with building roof plan. Represent various materials with suitable hatch and graphical representation.	1		2
	3	3,5,7	3	Develop Architectural presentation drawing for floor plans with all opening details, staircase details, level indications, dimensions etc.	1		3	Develop Architectural presentation drawing for floor plans with all opening details, staircase details, level indications, dimensions etc.	1		2
	3	3,5,7	4	Develop architectural Presentation drawing- Site plan and floor plans with Graphical representation, Hatch, Dimensioning, Naming, etc.	1		3	Develop architectural Presentation drawing- Site plan and floor plans with Graphical representation, Hatch, Dimensioning, Naming etc.	1		2
	3	3,5,7	5	**CIE 2 – Written and Practice Test**	4			Assessment Review and corrective action			3
	3	3,5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 8 , students will be able to,** □ Design plan and building form with best circulation and space design. □ Design various requirements of the project with fusion of aesthetics and technical aspects. □ Design and develop building section and elevation.							
8	3	3,5,7	1	**Peer Review on industrial assignment**		4		Collect data on standard sizes of furniture and various furniture required as per need of the design.	2		1
	3	3,5,7	2	Prepare furniture layout with graphical representation	1		3	Prepare furniture layout with graphical representation	1		2
	3	3,5,7	3	Prepare furniture layout for the floor plans with suitable furniture as per standard sizes.	1		3	Develop sections of the design project, minimum 2, showing details through staircase, Toilet, balcony, furniture, openings etc.	1		2
	3	3,5,7	4	Develop sections of the design project, minimum2, showing details through staircase, Toilet, balcony, furniture, openings etc.	1		3	Develop elevation defining levels, projections, openings etc.	1		2
	3	3,5,7	5	**Developmental Assessment**				Assessment Review and corrective action			3
	3	3,5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 9 , students will be able to,** • Identify various aspects of RCC structures and to prepare detailed drawings of the same for the given designdetails • Prepare bar bending schedule for the given design details for a RCC structure and to calculate quantity of reinforcement • Prepare detailed drawings of the design project.							
9	4	3,5,7	1	**Peer Review on industrial assignment**		4		Introduction to concepts of RCC structures, necessity of reinforcement. Prepare related sketches showing examples of RCC work.	2		1
	4	1,5,7	2	Prepare detailed drawings and bar bending schedule for Footing & column for the design	1		3	Prepare detailed drawings and bar bending schedule for lintel and chajjah.	1		2
	4	1,5,7	3	Prepare detailed drawings and bar bending schedule for beams	1		3	Prepare detailed drawings and bar bending schedule for one way or two way slab.	1		2
	4	1,5,7	4	Prepare detailed drawings and bar bending schedule for Staircase of the design	1		3	Prepare detailed drawings and bar bending schedule for Staircase of the design	1		2
	4	1,5,7	5	**CIE 3 – Written and Practice Test**	4			Assessment Review and corrective action			3
	4	1,5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 10 , students will be able to,** • Produce centre line plan. • Produce Working drawing of all floor plans. • Produce working drawing of Section and elevation.							
10		1,5,7	1	**Peer Review on industrial assignment**		4		Analyze appropriate column design and identify their correct positioning in plan.	2		1
	5	3,7	2	Prepare a center line plan as per column positioning.	1		3	Prepare a center line plan as per column positioning	1		2
	5	3,7	3	Prepare working drawing plan stating all details, dimensions, column positions, opening details, material hatch etc.	1		3	Prepare working drawing plan for all floors mentioning all nomenclatures, dimensions, column positions, opening details, material, hatch etc.	1		2
	5	3,7	4	Develop working section showing footing and plinth details, dimensions, levels, column positions, beams etc.	1		3	Develop working elevation stating projections, openings, finishes etc.	1		2
	5	3,7	5	**Developmental Assessment**				Assessment Review and corrective action			3
	5	3,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 11 , students will be able to,** • Draft working drawing for flooring, staircase and railing with enlarged details as per design requirements. • Design and prepare working drawing of windows and doors with joinery details, material specification and dimensions as per the design. • Design and produce working drawings for toilets with details of services.							
11	5	3,7	1	**Peer Review on industrial assignment**		4		Produce flooring plan for vitrified tile for spaces within and wooden texture tiles for balcony, deck etc. as per sizes available in market. Also, develop skirting detail drawing, flushed with wall level.	2		1
	5	5,7	2	Prepare detailed working drawing for staircase with all necessary details and specifications.	1		3	Develop detail drawings for railing design with all necessary details and specifications.	1		2
	5	5,7	3	Design windows , prepare detail drawings with dimensions, enlarged details and material specification	1		3	Prepare detail drawings for door with dimensions, enlarged details and material specification	1		2
	5	5,7	4	Design and produce detailed drawings for Toilets with plan, sections, tiling layout, describe fixtures and its position with dimensions, enlarged details, ventilator details, plumbing details and specifications.	1		3	Develop detailed drawings for Toilets with tiling layout, describe fixture position with dimensions, enlarged details, ventilator details, plumbing details and specifications.	1		2
	5	5,7	5	**CIE 4 – Written and Practice Test**	4			Assessment Review and corrective action			3
	5	5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 12 , students will be able to,** • Design and prepare working drawings with joinery details of compound wall and entrance gate. • Prepare detailed drawings for services of building. • Develop sanction drawing/ permission drawing for the project.							
12	5	5,7	1	**Peer Review on industrial assignment**		4		Design entrance to site, Gate and compound wall.	2		1
	5	3,7	2	Prepare detail drawing of gate and compound wall with enlarged details, dimensions and material specifications.	1		3	Prepare water supply and sanitary layout for all floors of the project.	1		2
	5	2,5,7	3	Prepare electrical layout with necessary dimensions for all floors of building and site plan.	1		3	Develop location map, rainwater harvesting tank details, footing details for sanction drawing.	1		2
	5	3,5,7	4	Prepare drawings for area calculation, Calculate built up area of the project and determine FAR in a table	1		3	Prepare sanction drawing with all necessary drawings using appropriate scale and layout.	1		2
	5	3,5,7	5	**Developmental Assessment**				Assessment Review and corrective action			3
	5	3,5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 13 , students will be able to,** • Express and communicate design solutions by presentation of the design project using 3D modelling software (different viewpoints, 3D modeling and rendering). • Produce variations by manipulations of light, shadow, colour, texture, materials etc. • Apply graphic design techniques for preparation of portfolio.							
13	5	3,5,7	1	**Peer Review on industrial assignment**		4		Develop 3D model for plinth, all levels slab and walls with opening, windows and doors	2		1
	5	3,4	2	Add Textures, materials, staircase details, and balcony railing, lighting fixtures, in the 3D model	1		3	Add components of site planning; define pathways, landscaping, and elements of landscaping inthe 3D model.	1		2
	5	3,4	3	Adding Gate, compound wall details with appropriate material finish in the 3D model of project.	1		3	Produce renders of different viewpoints of the design project presenting design concept, sectional views, exploded view of building, and important spaces of the design.	1		2
	5	3,4	4	Apply graphical design methods and prepare sheets on concept development. Site analysis, Site development, Architectural drawings(with proper line weight, Hatch etc.) and print a copy at appropriate scale	1		3	Prepare Print copy of all working drawings, sanction drawing at appropriate scale and produce a portfolio of design project.	1		2
	5	3,4	5	**CIE 5 – Written and Practice Test**	4			**Assessment Review and corrective action**			**3**
	5	3,4	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 14 , students will be able to,** □ Understand needs and requirements of estimation, different types and methods of estimating. □ Acquire knowledge on various building items and explain in detail the specification of each item of work □ Analyze the rates of various building items from first principle by considering the prevailing rates of material and labor.						
14	6	3,4	1	**Peer Review on industrial assignment**		4		Introduction to Estimation and specification. Objectives and necessity. Units and measurements of Estimation.	1		2
	6	1,5,7	2	Introduction to Specification, need for specification, specification writing. Identify specifications for various items. Consider a case and write detailed specification for excavation, PCC, RCC, Brick work, DPC, Flooring, doors and windows, plastering and painting.	1		3	Consider a case and write detailed specification for excavation, PCC, RCC, Brick work	2		1
	6	1,5,7	3	Write Detailed specification for the design project for DPC, Flooring, doors and windows, plastering and painting.	1		3	Introduction to Rate analysis, need of rate analysis. Prepare rate analysis for various items: Earth work, PCC, RCC, SSM, Brick work,	1		2
	6	1,5,7	4	Prepare rate analysis for various items: Doors, windows, Plastering, Flooring and Painting.	1		3	Requirements of Estimation, Methods of Estimation: Long Wall-Short wall method, Centre line method.	1		2
	6	1,5,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	6	1,5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 15 , students will be able to,** Identify the suitable method of estimating quantities to suit the Building design. Considering various construction details of a building and Preparing detailed estimate of quantities.							
15	6	5,7	1	**Peer Review on industrial assignment**		4		Consider a case and practice estimation for long wall- short wall method	2		1
	6	5,7	2	Consider a case and practice estimation for centre line method.	1		3	Prepare Detailed Estimate of quantities and abstract estimate for all the items of design project. Using long wall short wall method/ Centre line method	1		2
	6	5,7	3	Prepare Detailed Estimate of quantities and abstract estimate for all the items of design project. Using long wall short wall method/ Centre line method and make a report.	1		3	Prepare Detailed Estimate of quantities and abstract estimate for all the items of design project. Using long wall short wall method/ Centre line method and make a report.	1		2
	6	5,7	4	Prepare Detailed Estimate of quantities and abstract estimate for all the items of design project. Using long wall short wall method/ Centre line method and make a report.	1		3	Prepare Detailed Estimate of quantities and abstract estimate for all the items of design project. Using long wall short wall method/ Centre line method and make a report.	1		2
	6	5,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
	6	5,7	6	Industry Class	5						

Week	CO	PO	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes										
16				**Internship** a) Secondary research on various industries and their operations to identify at least 3 Architectural firms along with the areas of work interest and develop an internship plan that clearly highlights expectations from the industry during the internship. b) Design and develop a cover letter and a portfolio (at least 5-6 pages) for an internship request to all 3 identified firms and the resume to be submitted to potential companies. c) Prepare for an internship interview to highlight your interest, areas of study, career aspirations and personal competence- including the areas of learning you expect to learn during internship				**Project** a) Identification of the problem statement (from at least 3 known problems) the students would like to work as part of the project – either as provided by faculty or as identified by the student. Document the impact the project will have from a technical, social and business perspective. b) Design and develop the project solution or methodology to be used to solve at least one of the problems identified. c) Prepare a project plan that will include a schedule, WBS, Budget and known risks along with strategies to mitigate them to ensure the project achieves the desired outcome.			

CIE and SEE Assessment Methodologies

CIE Assessment	Assessment Mode	Duration In hours	Max Marks
Week 5	CIE 1– Written and practice test	4	30
Week 7	CIE 2– Written and practice test	4	30
Week 9	CIE 3– Written and practice test	4	30
Week 11	CIE 4– Written and practice test	4	30
Week 13	CIE 5– Written and practice test	4	30
Week 16	On line Course work (Minimum 10 hours online course with certification from (SWAYAM/NPTEL/Infosys Springboard)		40
	Profile building for Internship / Submission of Synopsys for project work		20
Portfolio evaluation (Based on industrial assignments and weekly developmental assessment) *			30
TOTAL CIE MARKS (A)			**240**
SEE 1 - Theory exam Conducted for 100 marks 3 hrs duration reduced to 60 marks		**3**	**60**
SEE 2 – Practical		**3**	**100**
TOTAL SEE MARKS (B)			**160**
TOTAL MARKS (A+B)			**400**

*****The industrial assignment shall be based on peer-to-peer assessment for a total of 10 marks (on a scale of 1 to 10) and in the event of a group assignment the marks awarded will be the same for the entire group, the developmental assessment will be for a total of 20 marks and based on MCQ/case study/demonstration and such other assignment methods

Assessment framework for CIE (1 to 5)

Note: Theory to be conducted for 1 hour and practice for 3 hours, total duration of exam – 4 hours

Programme	**Architecture Assistantship**	**Semester**	**V**
Course	**Architectural Design and Working Drawing**	**Max Marks**	**30**
Course Code	**1451**	**Duration**	**4 hours**
Name of the course coordinator			

Note: Answer one full question from each section.

Qn. No	Question	CL L3/L4	CO	PO	Marks
	Section-1 (Theory) – 10 marks				
1.a)	Develop plan of London Aquatic Centre	L3	1	3	5
b)	Elaborate five principles of Architecture by Le Corbusier	L3	1	1	5
2.a)	List principles of zoning	L4	2	1	2
b)	Sketch Light plane	L3	2	3	4
c)	Develop Plan of Gandhi Smarak Sangrahalaya, Ahmedabad	L3	1	1	4
	Section-2 (Practical) - 20marks				
3)	Develop a sketch of site plan for a Hotel/Hostel/Health club/ Recreational club/Secondary school on a given site. With parking layout and landscaping	L3	3	4	20
4)	Choose a case study for Hotel/Hostel/Health club/ Recreational club/Secondary school and develop its plan and analyze.	L3	3	3	20

Note : Theory questions shall be aligned to practical questions

Assessment framework for SEE 1 (Theory)

Programme : Architecture Assistantship
Semester : V
Course : Architectural Design and Working Drawing **Max Marks : 100**
Course Code : 1451 **Duration : 3 Hrs**

Instruction to the Candidate: Answer one full question from each section.

Q.No	Question	CL	CO	Marks
	Section-1			
1.a)	Explain Frank Lloyd Wright- Organic Architecture.	L2	1	4
b)	Explain Mies van der Rohe's Farnsworth house.	L2		6
2.a)	Sketch Gandhi Smarak Sangrahalaya, Ahmadabad	L4		5
b)	Write a note on Lauri Baker's Cost effective construction technique	L2		5
	Section-2			
3.a)	What is Set Back? Mention its importance.	L1	2	5
b)	Define Bye laws. Mentions its objectives.	L1		5
4.a)	Classify urban roads	L4		5
b)	Distinguish between active and passive recreation.	L4		5
	Section- 3			
5.a)	Classify different types of Parking layout	L4	3	5
b)	Define Landscape. Mention its objects and necessity.	L1		5
6.a)	Sketch any one landscape element.	L3		2
b)	Develop landscape layout for a residential site of 20X15m. Assume setbacks and design landscape, using suitable elements and graphical representation.	L3		8
	Section-4			
7.a)	Draw Sectional plan of a RCC square column of size 450x450mm with following reinforcement details. • Footing size: 1200x1200mm, footing mesh: 10mm dia @ 150mm C/c on both sides. • Column reinforcement: 16mm dia, 4 numbers, stirrups- 6mm dia @ 200mm c/c. • Clear cover: for column- 40mm , for footing- 50mm • Assume the missing data	L3,L4	5	5
b)	Draw sectional elevation of a RCC square column of size 450x450mm with following reinforcement details. • Footing size: 1200x1200mm, footing mesh: 10mm dia @ 150mm C/c on both sides.	L3,L4		5

	• Column reinforcement: 16mm dia, 4 numbers, stirrups- 6mm dia @ 200mm c/c. • Clear cover: for column- 40mm , for footing- 50mm • Assume the missing data			
8.a)	Distinguish between One way slab and two way slab.	L4		3
b)	Draw the sectional plan of one way slab- Assume the Reinforcement data.	L3		7
Section-5				
9.a)	Write detailed specification on first class brick masonry	L2	6	5
b)	Explain briefly necessity of specification.	L2		5
10.a)	Distinguish between long wall shot wall method and centre line method	L4		5
b)	Analyze from first principle the rate for Brick work in super structure with cement mortar 1:6	L4		5

Scheme of Evaluation for SEE 2

Sl. No	Description	Marks
1	Case submission	20
2	Case presentation	20
3	Case innovation	20
4	Result	20
5	Viva voce	20
Total		**100**

Case Submission / Content Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Identification of the main issues / problem	Identifies and understands all the main issues in the problem statement	Identifies and understands most of the main issues in the problem statement	Identifies and understands some of the issues in the problem statement	Identifies and understands a few of the issues in theproblem statement	Identifies limited issues in the problem statement	5
Analysis of the issues	Insightful and thorough analysis of all the issues	Thorough analysis of most of the issues	Superficial analysis of some of the issues in the problem statement	Incomplete analysis of the issues	No analysis of the issue	4
Comments on effective solutions / strategies (The solution may be in the problem statement already or proposed by you)	Well documented, reasoned and pedagogically appropriate comments on solutions, or proposals for solutions, to all Issues in the problem statement	Appropriate, well thought out comments about solutions, or proposals for solutions, to most of the issues in the problem statement	Superficial and / or inappropriate solutions to some ofthe issues in the problem statement	Little and/or inappropriate solutions to all of the issues in the problem statement	No action to all issues in the problem statement	2
Links to course learning and additional research	Excellent research into the issues with clearly documented linksto course learning and beyond.	Good research and documented links to the materials read during the course	Limited research and documented links to any readings	Incomplete research and links to any reading.	No research or links to any reading	3
Total						14/20

Case Presentation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Delivery & Enthusiasm	Very clear and concise flow of ideas Demonstrates passionate interest in the topic and engagement with class / examiner	Clear flow of ideas Demonstrates interest in the topic and engagement with class /examiner	Most ideas flow but is lost at times Limited evidence of interest in and engagement with the topic	Hard to follow the flow of ideas Lack of enthusiasm and interest	No flow in the presentation Poor presentation skills	4
Visuals	Visuals augmented and extended comprehension of the issues in unique ways	Use of visuals related to the topic	Limited use of visuals loosely related to the topic	No use of visuals	Poor visuals used and some visuals are not easy to understand its Relevance.	2
Staging	Uses stage effects such as props, sound effects, and speech modulation in a unique and dramatic manner that enhances the understanding of the issues in the problemstatement.	Uses stage effects such as props, sound effects, and speech modulation in an effective manner to extend the understanding of the issues in the problem statement.	Limited use of stage effects and/or used in a manner that did not enhance the understanding of the issues in the problem statement.	No use of stage effects	Poor stage effects usage	5
Involvement of the class/ Examiners Questions Discussions Activities	Excellent and salient discussion points that elucidated material to develop a deep understandingAppropriate and imaginative activities used to extend understanding in a creative manner	Questions and discussions addressed important information that developed understanding Appropriate activities used to clarify understanding	Questions and discussions addressed important superficial issues of the problem statement Limited use of activities to clarify understanding	Little or no attempt to engage the class / examiner in demonstrating their learning	Did not engage the class / examiner and poor listening skills	1
Total						12

Case Results Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Problem outcome	The topic was well researched and all information and data included are accurate and from reliable sources of information like high impact journals standards, etc. The proof was enough backed up with accurate data, analysis and reasoning beyond the class learning. Outcome achieved beyond the problem brief	The topic was researched and most information and data were from reliable sources of information. The proof was backed up with good data and reasoning as taught in the class. Outcome achieved as per the problem brief.	The topic was researched butinformation and data were only partly from reliable sources of information. The proof was not fully backed up with good data orreasoning as taught in the class. Partial outcome achieved as per the problem brief	The topic was researched and data were not from reliablesources. The proof was not backed up with data, analysis or reasoning as taught in the class. Some outcome obtained as per the problem brief	Desired results not obtained, but some relevant research was done. Outcome not obtained as per the problem brief	4
Application ofclass learningin problem solving	Made effective use of class principles, models and theories. Also used creativity to find effective results appropriate to industry beyond class learning.	Made good use of class principles, models and theories Some creative ideas were explored to find desired outcome but within the framework of class learning	Made some use of class principles, models and theories No creative ideas or models explored	Made limited use of class principles, models and theories	Poorly applied class principals, models and theories	3
Response to Class / Examiners Queries	Queries Excellent response to comments and discussion with appropriate content supported bytheory/research	Good response to questions and discussions with some connection made to theory/research	Satisfactory response to questions and discussions withlimited reference to theory/research	Limited response toquestions and discussions with no reference to theory/research	Poor or no response to questions and did not participate in thediscussions.	2
Conclusions	Provides detailed and appropriate conclusion for the problem statement	Provides appropriate conclusion for the problem statement	Provides adequate and mostly appropriate conclusions for the problem statement	Provides limited and somewhat appropriate conclusions for the problem statement	Has not provided appropriate conclusions for the problem statement.	4
Total						13/20

Case Innovation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Finding new processes / models / approaches	The newly discovered processes / models / approaches are of good quality and relevant	The newly discovered processes / models / approaches are of appropriate quality but limited relevance	The newly discovered processes / models / approaches have limited application butrelevant to the problem	The newly discovered processes / models / approaches has restricted application	No new processes / models / approaches were identified	5
Proposing ideas and innovative solutions in terms of processes / models /approaches and how they can be applied to solve the problem on hand	Various ideas and innovative solutions have been proposed and their application have been clearly outlined	Various ideas and innovative solutions have been proposed as well as the outline of the process to apply them	Some ideas or innovative solutions have been proposed but the process of applying them hasn't been specified	Few ideas have been proposed.	No ideas or innovative solutions have been proposed	3
Using creativity techniques to provide and reason good ideas which are original and unconventional	Wherever necessary creativity techniques are utilized to analyze and solve theproblem	Creativity techniques are frequently utilized in more than 50% of the occasions	Creativity techniques are utilized at times inless than 50% of the occasions	Creativity techniques are used a few times only	Creativity technique are not utilized to analyze and solve the problem	2
Finding constraints and weak points in existing processes / models / approaches or methods	Constraints and weak points are understood	Constraints and weak are identified	A critical analysis is undertaken	Only a description of the working process and methodsare provided	No constraints or weak points have been identified.	3
Total						13/20

References

Sl. No	Description
1.	Building Drawing – Shah M G, Tata McGraw – Hill, 1992.
2.	Building Planning & Drawing – Kumaraswamy N., Kameswara Rao A., Charotar Publishing
3.	Time savers standards for architectural design data by John Hancock
4.	Neufert's standards
5.	Form, Space & Order by Francis DK Ching.
6.	Estimating and Costing in Civil Engineering - B.N. Datta
7.	Estimating and Costing in Civil Engineering - M. Chakraborti
8.	Estimating and Costing in Civil Engineering - S.C. Rangwala
9.	Estimating and Costing in Civil Engineering - Mahajan
10.	Estimating and Costing in Civil Engineering - P.L. Bhasin
11.	Town Planning by Rangwala.
12.	Indian society of landscape architecture.
13.	ColiseBrenda, Land and landscape.

Required Course Facilities:

1. Lab equipment's list with appropriate specifications (Batch size:20)
2. Related Industry connect to conduct industry classes
3. Appropriate Virtual practice links.

Government of Karnataka
Department of Collegiate and Technical Education
JSS Polytechnic for the Differently Abled (Autonomous)

INTERIOR DETAILING AND QUANTITY SURVEYING

Programme	Architecture Assistantship	**Semester**	V
Course Code	**1452**	**Type of course** L:T:P	128:64:384 (8:4:24)
Specialization	**Interior Detailing and Quantity Surveying**	**Credits**	24
CIE Marks	240	**SEE Marks**	160

Introduction: Interior detailing and Quantity Surveying is a subject which introduces students, the importance of detailing interior components, to appreciate early interventions in design of furniture. The knowledge of preparing drawings to reveal enlarged detail of units. And to optimize project expenditure by adding value to the construction process by proactive involvement in procurement, cost management and reporting with the highest ethical standards. The objective is to train the student to prepare for a real-time judgment of the quality and quantity of materials, skill for preparing precise estimation. Also, to specify quantities of various items of material and work involved in an architectural project.

Pre-requisite

Basic knowledge of architectural drawing and Building materials.

Course Cohort Owner: A Course Cohort Owner is a faculty from the core discipline, who is fully responsible for one specialized field of study and the cohort of students who have chosen to study that specialized field of study.

Guidelines for Cohort Owner

1. Each Specialized field of study is restricted to a Cohort of 20 students which could include students from other relevant programs.
2. One faculty from the Core Discipline shall be the Cohort Owner, who for teaching and learning in allied disciplines can work with faculty from other disciplines or industry experts.
3. The course shall be delivered in boot camp mode spanning over 15 weeks of study, weekly developmental assessments and culminating in a mini capstone.

4. The industry session shall be addressed by industry subject experts (in contact mode/online / recorded video mode) in the discipline only.
5. The cohort owner shall be responsible to identify experts from the relevant field and organize industry session as per schedule.
6. Cohort owner shall plan and accompany the cohort for any industrial visits.
7. Cohort owner shall maintain and document industrial assignments, weekly assessments, practices and mini project.
8. The cohort owner shall coordinate with faculties across programs needed for their course to ensure seamless delivery as per time table
9. The cohort owner along with classroom sessions can augment or use supplementary teaching and learning opportunities including good quality online courses available on platforms like Karnataka LMS, Infosys Springboard, NPTEL, Unacademy, SWAYAM , etc.
10. Cohort owner shall guide the cohorts for the selection and execution of mini project.

Course outcome: A student should be able to

CO1	Conduct case study, literature study, market survey and prepare report with interior drawings.
CO2	Categorize the finishes and carpentry joints used in furniture.
CO3	Design and Produce detailed interior drawings of Residential Units and office Unit.
CO4	Analyse the methods of estimating and acquire knowledge on various building items with specification of each item of work.
CO5	Develop the construction details of a building and facilitate the preparation of detailed estimate of quantities.
CO6	Analyse the rate per unit quantity for interior items of a residential and office unit.

Detailed course plan

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 1 , students will be able to,** • Identify the importance of interior detailing. • Distinguish the evolution of furniture from ancient to modern, post-modern ideologies to contemporary. • Identify the need of studying anthropometric and ergonomics data to design Interior Space.							
1	1	1,2	1	Introduction on Interior detailing as a course, History of Interior &Furniture Design and the need of interior detailing.**Audio - Video Presentation.**	1		3	Role of furniture, evolution of furniture style, economic factors of furniture design and materials - its characteristics and application.Functional classification of space. Barrier freedesign. Prepare sheets on the same.**Audio - Video Presentation.**	1		2
	1	1,2	2	Understand the evolution of furniture from ancient to modern, post-modern ideologies to contemporary (Egyptian, Greek, Roman, Gothic, Baroque, Renaissance, Arts and Crafts Movement, Art Nouveau, De Stijl, Modernism, Post Modernism and Contemporary) **Audio - Video Presentation.**	1		3	**Conduct a literature study of ancient to modern, post-modern ideologies to contemporary interiors and prepare reports (PPT)**	1		2
	1	1,2	3	Understanding role of materials and technology in their transformation and various theories associated in their evolution	1		3	Designing the size and form of interior spacesusing user - activity analysis and anthropometrics. Importance of studying anthropometric and ergonomics data. Prepare sheets on the same.	1		2
	1	1,2	4	Modulation of interior spaces with art objects. Space modulation through artificial and natural lighting. Emphasis of focal pointsand unity in Interior Design. **Audio - Video Presentation.**	1		3	Application of scale, proportion to enhance the quality of space. Psychological effect of space. Prepare sketches of the same.	1		2
	1	1,2	**5**	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
	1	1,2	**6**	**Industry Class- and Industry Assignment** (Conduct a survey to find ancient andcontemporary furniture in and around yourregion. Prepare report on the same)	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 2 , students will be able to,** Analyze the need of conducting case study. Identify a residential building and a small office with basic interiors and conduct case study. Conduct a case study and prepare report with floor plans, Sections, Elevations and photographs etc.							
2	1	1,2	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Definitions related to interior design and interior detailing, designing process and materials. And the importance of conducting a case study and measured drawing. **Audio - Video Presentation.**	2		1
	1	1,2	2	Identify a residential building and a small office with basic interiors and conduct casestudy.	1		3	Prepare case study report showing interior layout in a single line sketch, material specification and photographs. -	1		2
	1	1,2	3	Prepare detailed plans for an existing residence showing all interior units of livingroom.	1		3	Prepare detailed sectional elevations for an existing residence showing all interior units of dining space.	1		2
	1	1,2	4	Prepare detailed plans for an existing smalloffice showing all interior units of kitchen unit.	1		3	Prepare detailed sectional elevations for an existing small office showing all interior unitsof bedroom.	1		2
	1	1,2	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	1	1,2	6	**Industry Class- and Industry Assignment** Visit a nearby Furniture showroom and collect information on material, finishes, cost etc. with photographs	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 3 , students will be able to,** • Identify Materials / Finishes used in interiors based on their usage. • Conduct a market survey and know the material specification and cost.							
3	1	1,2,3,4	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Conduct a literature study and Identify various materials, finishes and fixtures usedin furniture. Prepare a report of various materials used in furniture. **Audio - Video Presentation.**	2		1
	1	1,2,3,4	2	Study of Materials, Finishes & their applications in Furniture & other InteriorElements	1		3	Identify the materials classification based onthe elements of usage - floors, ceilings, walls,doors, windows, Indoor and outdoor furniture.	1		2
	1	1,2,3,4	3	In-depth understanding of the characteristicsand workability of various materials used in interiors. Their classification could be on basis of elements of usage (floors, ceilings, walls, doors, windows and fabric) or materials based like wood, metal plastics andtheir variants.	1		3	Conduct a Market survey to know the various Materials, Finishes & their applications in Furniture and their rates. Prepare report for the same	1		2
	1	1,2,3,4	4	Innovation in Furniture &Interior Design Modern materials, Modular furniture, Interior landscaping, Fittings & fixtures.	1		3	Conduct a Market survey to know the various Materials, Finishes & their applications in Furniture and their rates. Prepare report for the same	1		2
	1	1,2,3,4	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	1	1,2,3,4	6	**Industry class and assignment (Presentation on projects by professionals)**	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 4 , students will be able to,** • Identify carpentry joints used in furniture. • Prepare measured drawing of existing furniture with 3D view / scaled models. • Propose an alternate interior scheme for the given class room / lab / library/ drafting studio/ board roometc.						
4	2	1,2,3,4	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Visit a nearby carpentry workshop and understand the details of joineries used in furniture. Prepare report for the same. **Audio - Video Presentation.**	2		1
	2	1,2,3,4	2	Analysis & Design of Furniture Analysing existing designs of selected furniture on basis of ergonomics, user type, economics, material, carpentry joinery and maintenanceto ascertain their suitability.	1		3	Develop an interior layout of entrance lobby / principal's chamber / board room/office etc.	1		2
	2	1,2,3,4	3	Prepare Measured drawing of chosen furniture from the previous session andprepare 3D view of the same.	1		3	Identify the carpentry joints used in the selected furniture and prepare enlarged detailwith specification.	1		2
	2	1,2,3,4	4	Propose an alternate interior scheme for theselected interior layout.	1		3	Produce 3D view of the furniture for better understanding of function and materials.	1		2
	2	1,2,3,4	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	2	1,2,3,4	6	**Industry class and assignment (Presentation on projects by professionals)**	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 5 , students will be able to,** • Identify the work site of interiors of a residence. Propose an alternate scheme by using 2D / 3D skill. • Prepare Detailed interior drawings of Living room & Master bedroom with 3D view. • Prepare detailed drawings with specification of joineries used in living & Master Bedroom furniture.							
5	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**				Identify interiors work site of a residence. Prepare alternate schemes by using 2D / 3Dsoftware.	2		1
	3	1,2,3, 4	2	Analysis & Design of small Interior spaces ofa residential building - Living room, for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		3	Prepare detailed interior drawing of a Living showing all the necessary dimensions (detailed plan, sectional elevations) Show allnecessary enlarged and joinery detail. Develop 3D interior views.	1		2
	3	1,2,3, 4,5	3	Analysis & Design of small Interior spaces of a residential building - Master bedroom withtoilet, for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		3	Prepare detailed interior drawing of a Master bedroom with toilet, showing all the necessary dimensions (detailed plan, sectional elevations) Show all necessary enlarged and joinery detail. Develop 3D interior views.	1		2
	3	1,2,3, 4,5	4	Understand and Prepare detailed drawings with specification of joineries used in living	1		3	Understand and Prepare detailed drawings with specification of joineries used in Master Bedroom furniture's like Cot, Wardrobe, Study Unit, Dressing Unit, side table etc.	1		2
	3	1,2,3, 4,5	5	**CIE 1– Written and practice test**	4			**Assessment Review and corrective action**			3
	3	1,2,3, 4,5	6	**Industry class and assignment** **(Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 6, students will be able to,** 1. Understand the Thermal efficiency in buildings. 2. Highlight on the Mechanisms for Ventilation.							
6	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Identify the work site of interiors of a residence. Prepare alternate schemes by using2D and 3D software for the same.	2		1
	3	1,2,3, 4,5	2	Analysis & Design of small Interior spaces ofa Kitchen for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		3	Analysis & Design of small Interior spaces of a Kitchen for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		2
	3	1,2,3, 4,5	3	Prepare detailed drawing of a kitchen showing all the necessary dimensions (plansat various levels) Show all necessary enlarged and joinery detail. Develop 3D interior view of the same.	1		3	Prepare detailed drawing of a kitchen showing all the necessary dimensions (sectional elevations) Show all necessary enlarged and joinery detail. Develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5	4	Analysis & Design of small Interior spaces ofa dining space for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		3	Prepare detailed drawing of a dining space showing all the necessary dimensions (plansat various levels, sectional elevations) Show all necessary enlarged and joinery detail. Develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5	5	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
	3	1,2,3, 4,5	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 7, students will be able to,** 1. Understand the Indoor environmental quality. 2. Highlight on the Mechanisms for Ventilation.							
7	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**				Identify the work site of interiors of an office. Prepare alternate schemes by using 2D and 3D software for the same.	2		1
	3	1,2,3	2	Analyse small selected interior spaces and design an office like, executive/ architect office /retail outlet and conference, reception / waiting lobby including toilets, Aluminium partition for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		3	Analyse small selected interior spaces and design an office like, executive/ architect office /retail outlet and conference, reception / waiting lobby including toilets, Aluminium partition for varied aspects like function, ergonomics, materials and establishing detailed design criteria.	1		2
	3	1,2,3, 4,5	3	Prepare detailed drawing of an architect office /retail outlet showing all the necessary dimensions and develop 3D interior view of the same.	1		3	Prepare detailed drawing of an architect office /retail outlet showing all the necessary dimensions and develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5,7	4	Design alternate schemes for reception and waiting lobby space. Develop 3D interior view of the same.	1		3	Design alternate schemes for reception and waiting lobby space. Develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5	5	**CIE 2 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	3	1,2,3, 4,5	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 8 , students will be able to,** • Identify the work site of interiors of an Office. Propose an alternate scheme by using 2D / 3D skill. • Prepare Detailed interior drawings of reception and waiting lobby with 3D view. • Develop detailed drawing of Aluminium partition / wooden partition and false ceiling showing all thenecessary dimensions with enlarged carpentry detail.						
8	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Identify the work site of interiors of an office. Prepare alternate schemes by using 2D and3D software for the same.	2		1
	3	1,2,3	2	Prepare detailed interior drawing of reception and waiting lobby showing all thenecessary furniture and dimensions/ specifications(detailed plan, sectional elevations) Show all necessary enlarged andjoinery detail.	1		3	Prepare detailed interior drawing of receptionand waiting lobby showing all the necessary furniture and dimensions/ specifications(detailed plan, sectional elevations) Show all necessary enlarged and joinery detail.	1		2
	3	1,2,3, 4,5	3	Design a workspace in an executive/ architect office /retail outlet showing false ceiling and partition (aluminium partition/ wooden partition, etc.) Develop 3D interiorview of the same.	1		3	Design a workspace in an executive/ architect office /retail outlet showing false ceiling and partition (aluminium partition / wooden partition, etc.) Develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5	4	Prepare detailed drawing of partition (aluminium partition / wooden partition, etc.) showing all the necessary dimensions -detailed plan, sectional elevations. Show all necessary enlarged and joinery detail.	1		3	Prepare detailed drawing of false ceiling showing all the necessary dimensions (detailed plan, sectional elevations) Show allnecessary enlarged and joinery detail.	1		2
	3	1,2,3, 4,5,6, 7	5	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
	3	1,2,3, 4,5,6, 7	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 9 , students will be able to,** • Classify different types and methods of estimating. • Acquire knowledge on specifications various building items of work. • Prepare rate analysis for various building items of work.							
9	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Identify the work site of interiors of an office. Prepare alternate schemes by using 2D and3D software for the same.	2		1
	3	1,2,3	2	Prepare detailed interior drawing of reception and waiting lobby showing all thenecessary furniture and dimensions/ specifications(detailed plan, sectional elevations) Show all necessary enlarged andjoinery detail.	1		3	Prepare detailed interior drawing of receptionand waiting lobby showing all the necessary furniture and dimensions/ specifications(detailed plan, sectional elevations) Show all necessary enlarged and joinery detail.	1		2
	3	1,2,3, 4,5	3	Design a workspace in an executive/ architect office /retail outlet showing false ceiling and partition (aluminium partition/ wooden partition, etc.) Develop 3D interiorview of the same.	1		3	Design a workspace in an executive/ architect office /retail outlet showing false ceiling and partition (aluminium partition / wooden partition, etc.) Develop 3D interior view of the same.	1		2
	3	1,2,3, 4,5	4	Prepare detailed drawing of partition (aluminium partition / wooden partition, etc.) showing all the necessary dimensions -detailed plan, sectional elevations. Show all necessary enlarged and joinery detail.	1		3	Prepare detailed drawing of false ceiling showing all the necessary dimensions (detailed plan, sectional elevations) Show allnecessary enlarged and joinery detail.	1		2
	3	1,2,3, 4,5,6, 7	5	**CIE 3 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	3	1,2,3, 4,5,6, 7	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 10 , students will be able to,** • Prepare rate analysis for various building items of work. • Develop detailed estimate of a residential building.							
10	4	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Introduction to Estimation, necessity and steps involved in estimation. Detailed estimate of different items of works.	2		1
	4	1,2,3	2	Unit of measurement for various items of work. Types of estimate. Different methods of taking out quantities - centre line method and long short wall method.	1		3	Introduction to Specification the need for specification. Types of specification. Specificationwriting.	1		2
	4	1,2,3	3	Necessity of preparing detailed specification for various building items of work.	1		3	Types of estimates. Methods of Estimation: □ Long Wall-Short wall method □ Center line method	1		2
	4	1,2,3, 4	4	Analysis of Rate- Definition, necessity. Steps involved in analysing rates. Cost components tobe considered for analysis of rate. Task turnoutof a labour for various types of works. Introduction to schedule of rates.	1		3	Analysis of rates for the following items of work • Earthwork excavation in foundation • Cement concrete in foundation	1		2
	4	1,2,3	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	4	1,2,3, 4	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 11 , students will be able to,** • Develop detailed estimate of a residential building.							
11	4	1,2,3, 4	1	**Tutorial (Peer discussion on Industrial assignment)**				Analysis of rates for the following items of work • Ashlar masonry • Brick masonry in CM for superstructure	2		1
	4	1,2,3, 4	2	Analysis of rates for the following items of work • R.C.C roof slab • Plastering in Cement mortar	1		3	Analysis of rates for the following items of work □ cement concrete flooring □ Granite flooring □ vitrified tile flooring	1		2
	4	1,2,3, 4	3	Analysis of rates for the following items of work • Painting woodwork (Doors and windows)	1		3	Analysis of rates for the following items of work • Painting for interior (using plastic emulsion paint and Distemper) • Exterior wall painting using waterproof cement paint	1		2
	5	1,2,3, 4	4	Prepare the detailed estimate of quantities and abstract estimate of cost for a given building with specification for each item of work.	1		3	Prepare the detailed estimate of quantities and abstract estimate of cost for a given building with specification for each item of work.	1		2
	5	1,2,3, 4	5	**CIE 4 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	5	1,2,3, 4	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 12 , students will be able to,** • Analyze the rate per unit quantity for interior items • Determine the estimated cost with detail specification for interior items of a residential building whosedetail drawings are furnished • Prepare cost estimate for repair and renovation works of residential buildings							
12	5	1,2,3, 4	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Prepare the detailed estimate of quantities and abstract estimate of cost for a given building with specification for each item of work.	2		1
	5	1,2,3, 4	2	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCCroof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	4	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCCroof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	5	1,2,3, 4	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 13 , students will be able to,** • Analyze the rate per unit quantity for interior items • Determine the estimated cost with detail specification for interior items of a residential building whosedetail drawings are furnished • Prepare cost estimate for repair and renovation works of residential buildings							
13	5	1,2,3, 4	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Prepare the detailed estimate of quantities and abstract estimate of cost for a given building with specification for each item of work.	2		1
	5	1,2,3, 4	2	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCCroof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	4	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCCroof.	1		3	Detailed Estimate and abstract estimate of Residential building - single storied with flat RCC roof.	1		2
	5	1,2,3, 4	5	**CIE 5 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	5	1,2,3, 4	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 14 , students will be able to,** • Prepare the cost estimate for interior furnitureand furnishings							
14	6	1,2,3, 5,6,7	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Analysis of rate for the following interior furnitureand furnishings Wooden single seater Sofa using teak wood with cushions for seat and back rest Double cot with mattress using ply wood and decorative laminates	2		1
	6	1,2,3, 5,6,7	2	Analysis of rate for the following interior furniture and furnishings • Wardrobe using 19mm block board pre laminated both sides • Curio unit using ply wood and decorative laminates	1		3	Analysis of rate for the following interior furniture and furnishings • Aluminium Partitions using glass and pre laminated particle board • False Ceiling using Gypsum Board with GI Sections	1		2
	6	1,2,3, 5,6,7	3	Prepare the cost estimate for interior furnitureand furnishings for the Following residential building units. Living - Single and three seater sofa with teapoy made of teak wood, Curio unit using ply wood and decorative laminates,door and window curtains with pelmet box	1		3	Prepare the cost estimate for interior furnitureand furnishings for the Following residential building units. • Bed room: Double cot with mattress using ply wood and decorative laminates, Dressing unit made of plywood and decorative laminate and Wardrobe using 19mm block board pre laminated both sides	1		2
	6	1,2,3, 5,6,7	4	Prepare the cost estimate for interior furnitureand furnishings for the Following residential building units.Dining: Teak wood Dining table with glasstop, teak wood chairs with cushion seat and back rest, crockery cabinet made of pre laminated block board and glass.	1		3	Prepare the cost estimate for interior furnitureand furnishings for the Following residential building units. • Kitchen: Low level and high level storage cabinets, cooking range and exhaust Chimney	1		2
	6	1,2,3, 4, 5,6,7	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	6	1,2,3, 4, 5,6,7	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 15 , students will be able to,** • Prepare the cost estimate for Repair and renovation works							
15	6	1,2,3, 5,6,7	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Cost estimation of Repair and renovation worksfor the following items of a residential building. • Chipping and removing of existing interior wall plastering andplastering the same with 1:6 cement mortar	2		1
	6	1,2,3, 5,6,7	2	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Chipping and removing of existing exterior wall plastering and plastering the same with 1:6 cement mortar	1		3	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Scraping and removing of wall paint and providing the same with specified type of paint	1		2
	6	1,2,3, 5,6,7	3	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Scraping and removing of exterior wall paint and providing the same with specified type of paint	1		3	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Chipping and removing of existing flooring and providing the same with specified type of flooring	1		2
	6	1,2,3, 5,6,7	4	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Removing existing damaged Doors, windows and ventilators and replacingthem by specified type of new one	1		3	Cost estimation of Repair and renovation worksfor the following items of a residential building. • Dismantling of existing WPC and replacingthe same with specified type WPC	1		2
	6	1,2,3, 4, 5,6,7	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	6	1,2,3, 4, 5,6,7	6	**Industry class and assignment (Presentation on projects by professionals)**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes										
16				**Internship** a) Secondary research on various industries m and their operations to identify at least 3 companies along with the areas of work interest and develop an internship plan that clearly highlights expectations from the industry during the internship. b) Design and develop a cover letter for an internship request to all 3 identified companies and the resume to be submitted to potential companies. c) Prepare for an internship interview to highlight your interests, areas of study, career aspirations and personnel competence – including the areas of learning you expect to learn during internship.				**Project** a) Identification of the problem statement (from at least 3 known problems) the students would like to work as part of the project – either as provided by faculty or as identified by the student. Document the impact the project will have from a technical, social and business perspective. b) Design and develop the project solution or methodology to be used to solve at least one of the problems identified. c) Prepare a project plan that will include a schedule, WBS, Budget and known risks along with strategies to mitigate them to ensure the project achieves the desired outcome.			

CIE and SEE Assessment Methodologies

CIE Assessment	Assessment Mode	Duration In hours	Max Marks
Week 5	CIE 1– Written and practice test	4	30
Week 7	CIE 2– Written and practice test	4	30
Week 9	CIE 3– Written and practice test	4	30
Week 11	CIE 4– Written and practice test	4	30
Week 13	CIE 5– Written and practice test	4	30
Week 16	On line Course work (Minimum 10 hours online course with certification from (SWAYAM/NPTEL/Infosys Springboard)		40
	Profile building for Internship / Submission of Synopsys for project work		20
Portfolio evaluation (Based on industrial assignments and weekly developmental assessment) *			30
TOTAL CIE MARKS (A)			**240**
SEE 1 - Theory exam conducted for 100 marks 3 hrs duration reduced to 60 marks		**3**	60
SEE 2 – Practical		**3**	100
TOTAL SEE MARKS (B)			**160**
TOTAL MARKS (A+B)			**400**

*****The industrial assignment shall be based on peer-to-peer assessment for a total of 10 marks (on a scale of 1 to 10) and in the event of a group assignment the marks awarded will be the same for the entire group, the developmental assessment will be for a total of 20 marks and based on MCQ/case study/demonstration and such other assignment methods

Assessment framework for CIE (1 to 5)

Note : Theory to be conducted for 1 hour and practice for 3 hours, total duration of exam – 4 hours

Programme	**ARCHITECTURE ASSISTANTSHIP**	**Semester**	**V**
Course	**Interior Detailing and Quantity Surveying**	**Max Marks**	**30**
Course Code	**1452**	**Duration**	**4 hours**
Name of the course coordinator			

Note: Answer one full question from each section.

Qn.No	Question	CL L3/L4	CO	PO	Marks
	Section-1 (Theory) – 10 marks				
1.a)	Analyze the need of conducting case study.	L3	1	1,2,3,4,5	5
b)	Identify basic carpentry joints used in furniture with sketch.	L3	2	1,2,3,4,5	5
2.a)	Identify Materials / Finishes used in interiors based on their usage.	L3	1	1,2,3,4,5	2
b)	Distinguish the evolution of furniture from ancient to modern, post-modern ideologies to contemporary.	L3	1	1,2,3,4,5	3
c)	Design a study table and sketch carpentry joints used in study table.	L3	2	1,2,3,4,5	5
	Section-2 (Practical) - 20 marks				
3)	Prepare detailed interior drawing of living furniture showing all necessary enlarged and joinery detail.	L4	3	1,2,3,4,5	20
4)	Prepare detailed interior drawing of Master bedroom furniture showing all necessary enlarged and joinery detail.	L4	3	1,2,3,4,5	20

Note : Theory questions shall be aligned to practical questions

Assessment framework for SEE 1 (Theory)

Programme	**:**	**ARCHITECTURE ASSISTANTSHIP**			
Semester	**:**	**V**			
Course	**:**	**Interior Detailing and Quantity Surveying**	**Max Marks**	**:**	**100**
Course Code	**:**	**1452**	**Duration**	**:**	**3 Hrs**

Instruction to the Candidate: Answer one full question from each section.

Q.No	Question	CL	CO	Marks
	Section-1			
1.a)	Distinguish the evolution of furniture from ancient to modern, post-modern ideologies to contemporary.	4	1	10
b)	Identify the importance of interior detailing.	3		10
2.a)	Identify the need of studying anthropometric and ergonomics data to design Interior Space.	3		10
b)	Analyze the need of conducting case study.	4		10
Section-2				
3.a)	Identify carpentry joints used in furniture.	3	2	10
b)	Prepare measured drawing of an existing furniture with 3D view	4		10
4.a)	Propose an alternate interior scheme for the given class room / lab / library/ drafting studio/ boardroom etc.	4		10
b)	Identify the carpentry joints used in the selected furniture and prepare enlarged detail with specification.	4		10
Section- 3				
5.a)	Prepare Detailed interior drawings of Living room with 3D view.	4	3	10
b)	Prepare detailed drawings with specification of joineries used in living furniture.	4		10
6.a)	Prepare Detailed interior drawings of reception and waiting lobby with 3D view.	4		10
b)	Develop detailed drawing of aluminium partition / wooden partition and false ceiling showing all the necessary dimensions with enlarged carpentry detail.	4		10
Section-4				
7.a)	Classify different types and methods of estimating.	3	4	10
b)	Prepare analysis of rates for the following items of work	3		10

	R.C.C roof slab Plastering in Cement mortar			
8.a)	Prepare analysis of rates for the following items of work cement concrete flooring vitrified tile flooring	3		10
b)	Prepare analysis of rates for the following items of work Earthwork excavation in foundation Cement concrete in foundation	3		10
	Section-5			
9.a)	Prepare detailed Estimate and abstract estimate for the following items of work • Painting for interior (using plastic emulsion paint and Distemper) Exterior wall painting using waterproof cement paint	3	5 & 6	10
b)	Prepare detailed Estimate and abstract estimate for the following items of work • DPC in foundation Brick masonry in CM for superstructure	3		10
10.a)	Analyze from first principle the rate for the following interior furniture and furnishings • Wooden single seater Sofa using teak wood with cushions for seat and back rest Double cot with mattress using ply wood and decorative laminates	4		10
b)	Analyze from first principle the rate for the following interior furniture and furnishings • Wardrobe using 19mm block board pre laminated both sides Curio unit using ply wood and decorative laminates	4		10

Scheme of Evaluation for SEE 2

Sl. No	Description	Marks
1	Case submission	20
2	Case presentation	20
3	Case innovation	20
4	Result	20
5	Viva voce	20
Total		**100**

Case Submission / Content Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Identification of the main issues / problem	Identifies and understands all the main issues inthe problem statement	Identifies and understands most of the main issues in theproblem statement	Identifies and understands some of the issues in the problem statement	Identifies and understands a few ofthe issues in the problem statement	Identifies limitedissues in the problem statement	5
Analysis of the issues	Insightful and thorough analysis ofall the issues	Thorough analysis ofmost of the issues	Superficial analysis of some of the issues in theproblem statement	Incomplete analysis ofthe issues	No analysis of theissue	4
Comments on effective solutions / strategies (The solution may be inthe problem statement already or proposed by you)	Well documented, reasoned and pedagogically appropriate comments on solutions, or proposals for solutions, to all issuesin the problem statement	Appropriate, well thought out comments about solutions, or proposals for solutions,to most of the issues in the problem statement	Superficial and / or inappropriate solutionsto some of the issues inthe problem statement	Little and/or inappropriate solutions to all of the issues in the problemstatement	No action to all issuesin the problem statement	2
Links to course learning and additional research	Excellent research into the issues with clearly documentedlinks to course learning and beyond.	Good research and documented links to thematerials read during the course	Limited research anddocumented links to any readings	Incomplete research and links to any reading.	No research or linksto any reading	3
Total						14/20

Case Presentation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Delivery & Enthusiasm	Very clear and concise flow of ideas Demonstrates passionate interest in the topic and engagement with class / examiner	Clear flow of ideas Demonstrates interest in the topic and engagement with class /examiner	Most ideas flow but is lost at times Limited evidence of interest in and engagement with thetopic	Hard to follow the flow of ideas Lack of enthusiasm and interest	No flow in the presentation Poor presentation skills	4
Visuals	Visuals augmented and extended comprehension of the issues in unique ways	Use of visuals related to the topic	Limited use of visuals loosely related to the topic	No use of visuals	Poor visuals used and some visuals are not easy to understand its Relevance.	2
Staging	Uses stage effects such as props, sound effects, and speech modulation in a unique and dramatic manner that enhances the understanding of the issuesin the problem statement.	Uses stage effects such as props, sound effects, and speech modulation in an effective manner to extend the understanding of the issues in the problem statement.	Limited use of stage effects and/or used in a manner that did not enhance the understanding of the issues in the problem statement.	No use of stage effects	Poor stage effects usage	5
Involvement of the class/ Examiners Questions Discussions Activities	Excellent and salient discussion points that elucidated material to developa deep understanding Appropriate and imaginative activities used to extend understanding in a creative manner	Questions and discussions addressed important information that developed understanding Appropriate activities used to clarify understanding	Questions and discussions addressed important superficial issues of the problem statement Limited use of activities to clarify understanding	Little or no attempt to engage the class / examiner in demonstrating their learning	Did not engagethe class / examiner and poor listening skills	1
Total						12

Case Results Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Problem outcome	The topic was well researched and all information and data included are accurate and fromreliable sources of informationlike high impact journals standards, etc. The proof was enough backed up with accurate data, analysis and reasoning beyond the classlearning. Outcome achieved beyond the problem brief	The topic was researched and most information and data were from reliable sources of information.The proof was backed up with good data and reasoning as taught in the class. Outcome achieved asper the problem brief	The topic was researchedbut information and data were only partly from reliable sources of information. The proof was not fully backed up with good dataor reasoning as taught in the class. Partial outcome achieved as per the problem brief	The topic was researched and data were not fromreliable sources. The proof was not backed up with data, analysis or reasoning as taughtin the class. Some outcome obtained as per the problem brief	Desired results not obtained, butsome relevant research was done. Outcome not obtained as per the problem brief	4
Applicationof class learning in problem solving	Made effective use of class principles, models and theories. Also used creativity to find effective results appropriate toindustry beyond class learning.	Made good use of class principles, models and theories Some creative ideas were explored to find desired outcome butwithin the framework of class learning	Made some use of class principles, models and theories No creative ideas or models explored	Made limited use of class principles, models and theories	Poorly applied class principals, models and theories	3
Response to Class / Examiners Queries	Queries Excellent response to comments and discussion with appropriate content supportedby theory/research	Good response to questions and discussionswith some connection made to theory/research	Satisfactory response to questions and discussionswith limited reference to theory/research	Limited responseto questions and discussions with no reference to theory/research	Poor or no response to questions and did not participate in the discussions.	2
Conclusions	Provides detailed and appropriate conclusion for theproblem statement	Provides appropriate conclusion for the problem statement	Provides adequate and mostly appropriate conclusions for the problem statement	Provides limited and somewhat appropriate conclusions for the problem statement	Has not provided appropriate conclusions for the problem statement.	4
Total						13/20

Case Innovation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Finding new processes / models / approaches	The newly discovered processes / models / approaches are of good quality and relevant	The newly discovered processes / models / approaches are of appropriate quality but limited relevance	The newly discovered processes / models / approaches have limitedapplication but relevant to the problem	The newly discoveredprocesses / models / approaches has restricted application	No new processes / models / approaches were identified	5
Proposing ideas and innovative solutions in terms of processes / models /approaches and howthey can be applied to solve the problem on hand	Various ideas and innovative solutions have been proposed and their application have been clearly outlined	Various ideas and innovative solutions have been proposed as well as the outline of the process to apply them	Some ideas or innovative solutions have been proposed but the process of applying them hasn't been specified	Few ideas have beenproposed	No ideas or innovative solutions have been proposed	3
Using creativity techniques to provide and reason good ideas which are original and unconventional	Wherever necessary creativity techniques are utilized to analyzeand solve the problem	Creativity techniques are frequently utilizedin more than 50% of the occasions	Creativity techniques areutilized at times in less than 50% of the occasions	Creativity techniques are useda few times only	Creativity technique are not utilized to analyze and solvethe problem	2
Finding constraints and weak points in existing processes / models / approaches or methods	Constraints and weak points are understood	Constraints and weakare identified	A critical analysis is undertaken	Only a description ofthe working processand methods are provided	No constraints or weak points have been identified.	3
Total						13/20

References

Sl. No	Description
1.	Indian Green Building Council.
2.	Energy Efficient Buildings-TERI India Publications.
3.	. TEDDY (TERI's year books), TERI, New Delhi
4.	Sustainable Building Design Manual Vol 1 and 2, TERI, New Delhi.
5.	Sustainable Hospitality Alliance – Advancing responsibility
6.	3.0 The Social Benefits of Sustainable Design (energy.gov)
7	CI - LIMA-and-FARIA_Eco-efficient-earthen-plasters_ICNF2015.pdf (unl.pt)

Required Course Facilities:

1. Lab equipment list with appropriate specifications (Batch size:20)
2. Related Industry connect to conduct industry classes
3. Appropriate Virtual practice links

Government of Karnataka
Department of Collegiate and Technical Education
JSS Polytechnic for the Differently Abled (Autonomous)

RURAL AND URBAN PLANNING

Programme	Architecture Assistantship	**Semester**	V
Course Code	**1453**	**Type of course** L:T:P	128:64:384 (8:4:24)
Specialization	**Rural And Urban planning**	**Credits**	24
CIE Marks	240	**SEE Marks**	160

Introduction:

- Introduces students to importance of planning of cities.
- introduction to the history and theories of the planning profession
- Encompasses the use of open land, air, water and the built environment including buildings, transportation, economic and social functions.
- Introduces students to the approaches of current issues in the field of urban and rural planning.
- Encompasses the preparation of plans for and regulation and management of towns, cities.
- Introduces students to rural development and its role in the development of nation.

Pre-requisite

Basic knowledge of architectural drawing.

Course Cohort Owner: A Course Cohort Owner is a faculty from the core discipline, who is fully responsible for one specialised field of study and the cohort of students who have chosen to study that specialised field of study.

Guidelines for Cohort Owner

1. Each Specialized field of study is restricted to a Cohort of 20 students, which could include students from other relevant programs.
2. One faculty from the Core Discipline shall be the Cohort Owner, who for teaching and learning in allied disciplines can work with faculty from other disciplines or industry experts.
3. The course shall be delivered in boot camp mode spanning over 12 weeks of study, weekly developmental assessments and culminating in a mini capstone.
4. The industry session shall be addressed by industry subject experts (in contact mode/online / recorded video mode) in the discipline only.
5. The cohort owner shall be responsible to identify experts from the relevant field and organize industry session as per schedule.
6. Cohort owner shall plan and accompany the cohort for any industrial visits.

7. Cohort owner shall maintain and document industrial assignments, weekly assessments, practices and mini project.
8. The cohort owner shall coordinate with faculties across programs needed for their course to ensure seamless delivery as per time table
9. The cohort owner along with classroom sessions can augment or use supplemental teaching and learning opportunities including good quality online courses available on platforms like Karnataka LMS, Infosys Springboard, NPTEL, Academy, SWAYAM, etc.
10. Cohort owner shall guide the cohorts for the selection and execution of mini project.

Course outcome: A student should be able to

CO1	Analyze the concept and importance of rural development.
CO2	Apply different city theories and methodology adopted by urbanists.
CO3	Analyze the significance of zoning, surveying and its implementation in built environment.
CO4	Explore the concepts of housing, public buildings and its access by different socio economic groups.
CO5	Apply the fundamental concept of infrastructure, recreation, transportation and its practice in India
CO6	Develop conceptual layout of smart cities in a sustainable way through master plan.

Detailed course plan

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 1 , students will be able to,** Summarize the architecture philosophies of foreign architects during 20th century. Sketch and explain the works of modern master architects.							
1	1	1	1	Introduction to the subject, Rural planning: concepts, village as an organic entity, physical, social, economic, administrative structure of village, land use in rural areas. Audio and video presentation on Rural planning.	1		3	Data collection about concepts of rural planningand development.	1		2
	1	1	2	Rural planning, necessity of rural planning, levels of planning, decentralization policy of planning, components of ideal development project Water resource management and sanitation. Prepare a questionnaire for conducting socio - economic survey.	1		3	Undertake socio economic survey of a small nearby village and prepare a report based on thesurvey, which includes list of available natural resources.	1		2
	1	1	3	Rural development, need of rural development, objectives, significance of rural development, rural problems, socio economic survey. Collect data about available natural resources ofthe village.	1		3	The Students are required to develop the sketches of features of rural house showing thedetails of sanitation and water supply.	1		2
	1	1	4	Central and state government schemes regardingrural development. Collect information about government schemes	1		3	Prepare a report on schemes of central government regarding rural development	1		2
		1	5	**Developmental Assessment**				**Assessment Review and corrective action**			**3**
		1	6	**Industry class and assignment** • **Presentation on projects by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 2 , students will be able to,** 1. Identify low cost materials and construction techniques used in rural area.							
2	1	1	1	**Peer Review on industrial assignment**		4		The Students are required to undertake fieldsurveys on typology of housing in a nearby village.	2		1
	1	1	2	Rural housing: facilities, resource based rural development.	1		3	Prepare a report on rural housing of sketches demonstrating construction techniques.	1		2
	1	1	3	Rural housing: Agro based industries, tourism development, climate change and its effects onrural economy.	1		3	Field visit to an agro based industry located innearby rural area.	1		2
	1	1	4	Climate change and its effects onrural economy. Data collection of low cost materials used inrural housing.	1		3	Prepare a report on Low cost housing and local materials used for construction with the aid of sketches demonstrating low cost techniques.	1		2
	1	1	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	1	1	6	**Industry Class- and Industry Assignment** • Rural Housing and development programme.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 3 , students will be able to,** 1. Analyze various rural development schemes.							
3	2	1,2,3	1	**Peer Review on industrial assignment**		4		The Students are required to undertake field surveys on typology of housing in a nearby village.	2		1
	2	1,2,3	2	Resource mapping, resource mobilization including social mobilization.	1		3	Prepare a report on agro based industry and Social mobilization.	1		2
	2	1,2,3	3	Role of resource mobilization in rural development. Information technology and rural planning, rural marketing and rural finance.	1		3	Prepare a report on rural development and rural planning.	1		2
	2	1,2,3	4	Collect information on role of information technology in rural planning.	1		3	Prepare a report on rural marketing and rural finance.	1		2
	2	1,2,3	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	2	1,2,3	6	**Industry class and assignment** • Rural development and Information Technology	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 4 , students will be able to,** 1. Understand the history of evolution of towns. 2. Identify the growth of towns.							
4	3	2,3	1	**Peer discussion on Industrialassignment**		4		Introduction to Urban planning Collection of data about evolution of planning in India.	2		1
	3	2,3	2	Evolution of planning, history of town planning and thought from ancient texts and treatise in India (Vedic Literature).	1		3	Prepare a report of town planning of and Vedic Literature.	1		2
	3	2,3	3	Classification of settlements and plans of ancient Indian villages and towns. Gathering information about the ancient city plans of Harappa and Mohenjo-Daro.	1		3	Prepare a report of the planning of Harappa and Mohenjo-Daro towns in Indus valley civilization.	1		2
	3	2,3,7	4	Objects of planning, Principles of Urban planning, Benefits of planning.	1		3	Prepare a report on Urban planning .	1		2
	3	1,2,3	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	3	1,2,3	6	**Industry Class- and Industry Assignment** History of town planning and Urban planning.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 5 , students will be able to,** 1. Identify the growth of towns. 2. Understand various theories of town planners.							
5	3	1,2,3,7	1	**Peer discussion on Industrial assignment**		4		Introduction to growth of towns.	2		1
	3	1,2,3,7	2	Origin and growth of towns. Identify the type of growth of your residing city and know the legends used.	1		3	Prepare a report on Horizontal and vertical growth of cities with an example for each and write your conclusion.	1		2
	3	1,2,3,7	3	Planning theory by, Le Corbusier.	1		3	Study of master plan of Chandigarh by Le Corbusier and prepare a report.	1		2
	3	1,2,3,7	4	Planning theory by, Patrick Geddes.	1		3	Study of Geddian trio representation and valley section by Patrick Geddes.	1		2
	3	1,2,3	5	**CIE 1 – Written and Practice Test**	4			**Assessment Review and corrective action**			3
	3	1,2,3	6	**Industry Class- and Industry Assignment** Works of Le Corbusier and Patrick Geddes / similar topic.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 6 , students will be able to,** 1. Apply the methodology for conducting survey. 2. Identify the importance of surveys.							
6	3	1,7	1	**Peer discussion on Industrial assignment**		4		Continuation of preparation of report onChandigarh plan.	2		1
	3	1,7	2	Town Planning surveys, necessity of survey, collection of data.	1		3	Prepare a report on Town planning survey and data collection.	1		2
	3	1,7	3	Collect data on the types of survey and its methods.	1		3	Prepare a report on the type of data collected through functional survey.	1		2
	3	1,7	4	Types of surveys, Physical and Socio-Economic Surveys.	1		3	Prepare a report on Types of surveys.	1		2
	3	1,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	3	1,7	6	**Industry Class- and Industry Assignment** Surveys.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 7 , students will be able to,** 1. Identify the types surveys. 2. Read maps and analyze the data.							
7	3	3,5,7	1	**Peer discussion on Industrial assignment**				Introduction to Topographical surveying and Drone technology.	2		1
	3	3,5,7	2	Topographical Surveying, uses of topographical maps	1		3	Prepare a report on the type of data collectedthrough functional survey, social survey, territorial survey and vital survey.	1		2
	3	3,5,7	3	Use of drone technology in surveying. Maps – Types of Maps, Application of GPS.	1		3	Conduct preliminary survey of the surrounding area of your college and prepare the report of thesame.	1		2
	3	3,5,7	4	Collect data on application of GPS in survey. Collect data on GPS land survey.	1		3	Prepare a report on applications of drone survey.	1		2
	3	3,5,7	5	**CIE 2 – Written and Practice Test**	4			Assessment Review and corrective action			3
	3	3,5,7	6	**Industry Class- and Industry Assignment** Drone Technology and GPS survey	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 8 , students will be able to,** 1. Apply the byelaws and zoning regulations. 2. analyze various laws related to town planning. □ Analyze theories of urbanization.							
8	3	` 3,5,7	1	**Peer Review on industrial assignment**		4		Visit city municipal corporation office and collectthe Byelaws of your city.	2		1
	3	3,5,7	2	Building Byelaws and planning Legislation. Objects, importance, function of local authority. Setbacks, Light plane, Floor space index. Case laws related to matters related to plan preparation, implementation and enforcement Data collection of building byelaws for a Residential building.	1		3	Visit any residential building, measure the setbacks, and compare the same with standardbyelaws	1		2
	3	3,5,7	3	Zoning Definition, necessity, principles, advantages, aspects of zoning. Collect data of zoning regulations of your residingcity.	1		3	Prepare a report on the case study of the above and write your analysis on the comparison with Byelaws of your locality. Calculate the FAR achieved for the above residential building and compare with allowable FAR.	1		2
	3	3,5,7	4	Theories of urbanization including ConcentricZone Theory; Sector Theory; Multiple Nuclei Theory and other latest theories. Collect a data on Land Use and Land Value Theoryof William Alonso; City as an Organism: a physical entity, social entity andpolitical entity.	1		3	Prepare report on collected data of zoning regulations.	1		2
	3	3,5,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	3	3,5,7	6	**Industry Class- and Industry Assignment** Zoning and Bye Laws	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 9 , students will be able to,** 1. Prepare a layout plan for a residential layout. 2. Prepare report about various housing development schemes.							
9	4	1,5,7	1	**Peer Review on industrial assignment**		4		Collect norms and laws related to design of residential layout.	2		1
	4	1,5,7	2	Housing : Requirements, classification of residential buildings, design of residential areas in cities Collect zoning regulations of a residential layoutplan.	1		3	Visit to a residential layout prepare the layout plan using Cad and prepare a chart showing landuses.	1		2
	4	1,5,7	3	Low cost housing; methodologies of cost reduction in housing, Low cost and eco-friendly building materials (indigenous, agricultural, industrial, others Collect data about activities of HUDCO.	1		3	Prepare a report on collected information of lowcost materials with your analysis.	1		2
	4	1,5,7	4	Neighborhood planning, principles, features of neighborhood unit. Collect data for neighborhood planning.	1		3	Visit to a gated community and study its features.	1		2
	4	1,5,7	5	**CIE 3 – Written and Practice Test**	4			**Assessment Review and corrective action**			3
	4	1,5,7	6	**Industry Class- and Industry Assignment** Low cost Housing	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 10 , students will be able to,** 1. Identify housing agencies involved in promotion of housing. 2. Recognize slum clearance methods and re-housing. .							
10	4	2	1	**Peer Review on industrial assignment**		4		Prepare a report along with layout plan on thevisit to a gated community.	2		1
	5	3,7	2	Role of Institutions in housing generation and upgrading ; Housing and Urban Development Corporation, Building Materials Training and Promotion Council, Central Building Research Institute, Participatory models and their application in housing, Collect information about government and non-government agencies involved in promoting housing.	1		3	Prepare a report on various housing agenciesinvolved in promoting housing.	1		2
	5	3,7	3	Slums: Causes, characteristics of slums, Effects of slum, objects of slum clearance programme, Legal aspects for slum clearance. Collect data on modern slum improvement techniques.	1		3	Visit to a slum rehabilitation centre in your locality.	1		2
	5	3,7	4	Slum clearance methods and re-housing. Collect data on various schemes adopted by slumclearance board.	1		3	Prepare a report with layout plan on the visit toa slum rehabilitation centre.	1		2
	5	3,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	5	3,7	6	**Industry Class- and Industry Assignment** Slum rehabilitation	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 11 , students will be able to,** 1. Identify different types of public buildings and their grouping. 2. Analyze the design of industrial building.							
11	5	5,7	1	**Peer Review on industrial assignment**		4		Collect data on types of public buildings in a city and prepare the report for the same.	2		1
	5	5,7	2	Public buildings: Classification, location and design, principles. Collect data required to design public building.	1		3	Visit to a public building and prepare a report.Draw the key plan of the same.	1		2
	5	5,7	3	Grouping of public buildings and Town Centre Case study of town centre	1		3	Prepare a report on the case study of town Centre. Give your analysis on the design of town centre.	1		2
	5	5,7	4	Industries, classification, their effects on town planning, Regulation of their location and disposal of waste. Concentration of industries, requirementsof an industry, measure to control location of industries. Industrial township, treatment of industrial wastes, classification of industrial wastes. Collect information on any industrial township.	1		3	Visit to an industrial building.	1		2
	5	5,7	5	**CIE 4 – Written and Practice Test**		4		**Assessment Review and corrective action**			3
	5	5,7	6	**Industry Class and Industry Assignment** Industrial township		**5**					

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 12 , students will be able to,** 1. Identify passive and active recreation facilities. 2. Design parks and play grounds considering the norms.							
12	5	3,7	1	**Peer Review on industrial assignment**		4		Prepare a report with the given layout plan on avisit to an industrial building.	1		2
	5	5,7	2	Parks and playgrounds, Parks, classification of parks, park systems, park design and parkways. Data collection of space standards of parks	1		3	Visit to a nearby park	1		2
	5	2,5,7	3	Playgrounds, types of playgrounds and boulevards. Space standards for the design of play grounds.	1		3	Design a park for a given space according to the space standards. Prepare relevant drawingsusing Cad.	1		2
	5	7	4	Site planning process; selection of site, site analysis, general principles and guidelines for plan preparation ,Site Planning standards,Preparation of plans for residential, commercial, Institutional, recreational and industrial sites. Collect norms &Standards for above topic.	1		3	Continuation of the park design and drawings.	1		2
	5	7	5	**Developmental Assessment**				Assessment Review and corrective action	1		**2**
	5	7	6	**Industry Class and Industry Assignment** Park Design	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 13 , students will be able to,** 1. Identify the various elements of road and street. 2. Analyze the classification of roads and street systems.							
13	5	3,4	1	**Peer Review on industrial assignment**		4		The Students are required to undertake field surveys for data Collection for the above Said Planning Studio Exercise on site planning.	2		1
	5	3,4	2	Urban Roads, objects, requirements, factors to be considered while designing an urban road, classification of urban roads. Collect data about design manual for urban road.	1		3	Study of road systems in a nearby neighborhood unit.	1		2
	5	3,4	3	Types of street systems, through and by-pass roads, outer and inner ring roads, expressways and freeways. Road aesthetics. Study the road network pattern of your locality.	1		3	Prepare a report with sketches on the existing problems of road systems in a nearby neighborhood unit and suggest suitable solutions.	1		2
	5	3,4	4	Cross sectional and longitudinal elements of urban roads - right of way, carriageway, median, service lane, footpath, curb, camber, side slope, service road, horizontal curves, vertical curves, super elevation, sight distance, access control, Intersections and interchanges – types, capacity and design principles; Traffic controls and regulation devices - traffic signs, signals and markings; Road infrastructure and road landscape design features. Collect data on the use of Intelligent Transport System (ITS) for traffic management.	1		3	Visit a nearby bus terminal	1		2
	5	3,4	5	**CIE 5 – Written and Practice Test**		4		**Assessment Review and corrective action**			3
	5	3,4	6	**Industry Class and Industry Assignment** Road infrastructure of the city.		**5**					

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 14 , students will be able to,** 1. Conduct traffic survey 2. analyze the master plan of a city							
14	6	1,5,7	1	**Peer Review on industrial assignment**		4		Prepare the report and draft the given plan of the bus terminal.	2		1
	6	1,5,7	2	Transportation planning process – stages and surveys/ studies; Traffic surveys, presentation and analysis- traffic volume, parking, origin & destination, speed & delay, accidents; collect planning considerations, norms anddesigns of bus and truck terminals	1		3	Conduct a traffic survey of a nearby circle and prepare a report.	1		2
	6	5,7	3	Features of master plan, planning standards,written report accompanying the master plan. Collection of planning standards for preparingmaster plan from town planning authority. Perspective plan and zonal plan. Collect and study masterplan of your residingcity.	1		3	Prepare a report on the collected master planand study the various land uses.	1		2
	6	5,7	4	Master plan of New Delhi by Edwin Lutyens. Collection and study of original master plan of New Delhi by Edwin Lutyens	1		3	Prepare a report on the Master Plan of New Delhiand infer your analysis on the same	1		2
	6	5,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	6	5,7	6	**Industry Class and Industry Assignment** Master plan.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 15 , students will be able to,** 1. Analyze the features of smart city 2. Apply sustainable features in urban development. 3. Identify solid waste disposal and recycling methods							
15	6	5,7	1	**Peer Review on industrial assignment**		4		Continuation of the report on masterplan	2		1
	6	5,7	2	Smart city, features of smart cities, steps to convert normal city to a smart city, examples of smart cities of India. Collect data about upcoming smart cities in Karnataka.	1		3	Study any one of smart city in India and prepare the report on the same.	1		2
	6	5,7	3	Sustainable urban development, effective land use, habitat prevention and restoration, efficient transportation management, effective use of resources, water efficiency, energy efficiency, and climate change mitigation and adaptation. Collect data about various sustainable measures to be adopted in planning of a city.	1		3	Visit any nearby green building and prepare a report on the same.	1		2
	6	5,7	4	Solid waste generation and disposal methods like composting, incineration, sanitary landfill Biomass, energy –solar, photovoltaic cells, use of PPP models in various kinds of utilities, Govt. Programs on storm water and urban drainage system and Municipal Solid waste disposal case Studies. Government Programs on water supply like AUWPP (Accelerated Urban Water Supply Program)	1		3	Visit waste collection Centre in your city and study the segregation of different types of waste.	1		2
	6	5,7	5	**Developmental Assessment**				**Assessment Review and corrective action**			3
	6	5,7	6	**Industry Class and Industry Assignment** Solid waste disposal and recycling methods.	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes										
16				**Internship** a) Secondary research on various industriesm and their operations to identify at least 3 companies along with the areas of work interest and develop an internship plan that clearly highlights expectations from the industry during the internship. b) Design and develop a cover letter for an internship request to all 3 identified companies and the resume to be submitted to potential companies. c) Prepare for an internship interview to highlight your interests, areas of study,career aspirations and personnel competence – including the areas of learning you expect to learn during internship.				**Project** a) Identification of the problem statement (from at least 3 known problems) the students wouldlike to work as part of the project – either as provided by faculty or as identified by the student. Document the impact the project will have from a technical, social and business perspective. b) Design and develop the project solution or methodology to be used to solve at least one ofthe problems identified. c) Prepare a project plan that will include a schedule, WBS, Budget and known risks alongwith strategies to mitigate them to ensure theproject achieves the desired outcome.			

CIE and SEE Assessment Methodologies

CIE Assessment	Assessment Mode	Duration In hours	Max Marks
Week 5	CIE 1– Written and practice test	4	30
Week 7	CIE 2– Written and practice test	4	30
Week 9	CIE 3– Written and practice test	4	30
Week 11	CIE 4– Written and practice test	4	30
Week 13	CIE 5– Written and practice test	4	30
Week 16	On line Course work (Minimum 10 hours online course with certification from (SWAYAM/NPTEL/Infosys Springboard)		40
	Profile building for Internship / Submission of Synopsys for project work		20
Portfolio evaluation (Based on industrial assignments and weekly developmental assessment) *			30
TOTAL CIE MARKS(A)			**240**
SEE 1 - Theory exam conducted for 100 marks 3 hrs duration reduced to 60 marks		**3**	60
SEE 2 – Practical		**3**	100
TOTAL SEE MARKS (B)			**160**
TOTAL MARKS (A+B)			**400**

*****The industrial assignment shall be based on peer-to-peer assessment for a total of 10 marks (on a scale of 1 to 10) and in the event of a group assignment the marks awarded will be the same for the entire group, the developmental assessment will be for a total of 20 marks and based on MCQ/case study/demonstration and such other assignment methods

Assessment framework for CIE (1 to 5)

Note: Theory to be conducted for 1 hour and practice for 3 hours, total duration of exam – 4 hours

Programme	**Architecture Assistantship**	**Semester**		**V**	
Course	**Rural and Urban planning**	**Max Marks**		**30**	
Course Code	**1453**	**Duration**		**4 hours**	
Name of the course coordinator					
Note: Answer one full question from each section.					
Qn.No	**Question**	**CL L3/L4**	**CO**	**PO**	**Marks**
Section-1 (Theory) – 10 marks					
1.a)	Identify the features of rural planning and analyse its role in national development.	4	1	3,5,6	5
b)	Demonstrate the features of rural house with the aid of sketches.	3	1	3,5,6	5
2.a)	Analyse the town planning approaches adopted in the period of Indus valley civilisation.	4	2	2,3	5
b)	Relate the principles of town planning adopted by Le Corbusier to the planning of Chandigarh	3	2	2,3,4	5
c)	Give your analysis on Patrick Geddes principle of trio representation of cities.	4	2	2,3	5
Section-2 (Practical) - 20 marks					
3)	Develop the sketches of features of rural house showing the details of sanitation and water supply.	3	1	1,2,3,4	10
4)	Analyse the planning of Chandigarh city with the aid of sketches.	3	2	1,2,3,4	10

Note : Theory questions shall be aligned to practical questions

Assessment framework for SEE 1 (Theory)

Programme : Architecture Assistantship
Semester : V
Course : Rural and Urban planning **Max Marks : 100**
Course Code : 1453 **Duration : 3 Hrs**

Instruction to the Candidate: Answer one full question from each section.

Q.No	Question	CL	CO	Marks
	Section-1			
1.a)	Identify the features of rural planning and analyze its role in rural development.	4	1	10
b)	Sketch and analyze features of rural house.	4	1	5
c)	Demonstrate the contribution of central government in rural development.	3	1	5
2.a)	Identify the role of surveys in urban planning and list the types of surveys.	4	3	10
b)	Identify the types of maps used in town planning.	4	3	5
c)	Compare density zoning and height zoning.	4	3	5
	Section-2			
3.a)	Relate the principles of town planning adopted by Le Corbusier to the planning of Chandigarh.	3	2	10
b)	Give your analysis on Patrick Geddes principle of trio representation of cities.	4	2	10
4.a)	Identify the various byelaws required for the design of residential building.	4	3	10
b)	Sketch and demonstrate Light Plane and list its advantages in Urban planning.	3	3	5
c)	Give your analysis on land use zoning.	4	3	5
	Section- 3			
5.a)	Analyze the significance of zoning for making the town-planning scheme more effective.	4	3	10
b)	Calculate the floor area required for ground floor and first floor for given site of a residence. Residence is to be constructed in a site area of 12x18m with G+1 storey's. Permissible FAR is 1.75, front margin is 2.5m and side margins are 1.5m.	3	3	10
6.a)	Analyze the main objectives of national housing policy of India in the development of town.	4	4	10
b)	Give your analysis on skyscrapers and their role in urban planning.	4	4	5

c)	Identify the methods of low cost housing and analyse its necessity in our country.	3	4	5
Section-4				
7.a)	Analyze how slums can be hindrance in the growth of cities.	4	4	10
b)	Identify the role of slum clearance in urban planning and list its methods.	4	4	5
C)	Suggest your ideas how development of slums can be avoided in a city.	3	4	5
8.a)	Analyze the smart city as one of the concept for national development.	3	6	10
b)	Analyze the data to be collected while preparing the master plan of a town.	4	6	5
c)	Analyze the features of master plan of New Delhi by Edwin Lutyens.	3	6	5
Section-5				
9.a)	Design a park on a site measuring 30mx40m considering the space standards.	3	5	10
b)	Analyze general principles and guidelines for site planning process.	4	5	10
10.a)	Analyze the need of sustainable development in India.	4	6	10
b)	Identify effective methods of disposal and recycling of solid waste.	3	6	10

Scheme of Evaluation for SEE 2

Sl. No	Description	Marks
1	Case submission	20
2	Case presentation	20
3	Case innovation	20
4	Result	20
5	Viva voce	20
Total		**100**

Case Submission / Content Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Identification of the main issues / problem	Identifies and understands all the main issues in the problem statement	Identifies and understands most of the main issues in the problem statement	Identifies and understands some of the issues in the problem statement	Identifies and understands a few of the issues in the problem statement	Identifies limited issues in the problem statement	5
Analysis of the issues	Insightful and thorough analysis of all the issues	Thorough analysis of most of the issues	Superficial analysis of some of the issues in the problem statement	Incomplete analysis of the issues	No analysis of the issue	4
Comments on effective solutions / strategies (The solution may be in the problem statement already or proposed by you)	Well documented, reasoned and pedagogically appropriate comments on solutions, or proposals for solutions, to all issues in the problem statement	Appropriate, well thought out comments about solutions, or proposals for solutions, to most of the issues in the problem statement	Superficial and / or inappropriate solutions to some of the issues in the problem statement	Little and/or inappropriate solutions to all of the issues in the problem statement	No action to all issues in the problem statement	2
Links to course learning and additional research	Excellent research into the issues with clearly documented links to course learning and beyond.	Good research and documented links to the materials read during the course	Limited research and documented links to any readings	Incomplete research and links to any reading.	No research or links to any reading	3
Total						14/20

Case Presentation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Delivery & Enthusiasm	Very clear and concise flow of ideas Demonstrates passionate interest in the topic and engagement with class / examiner	Clear flow of ideas Demonstrates interest in the topic and engagement with class /examiner	Most ideas flow but is lost at times Limited evidence of interest in and engagement with thetopic	Hard to follow the flow of ideas Lack of enthusiasm and interest	No flow in the presentation Poor presentation skills	4
Visuals	Visuals augmented and extended comprehension of the issues in unique ways	Use of visuals related to the topic	Limited use of visuals loosely related to the topic	No use of visuals	Poor visuals used and some visuals are not easy to understand its Relevance.	2
Staging	Uses stage effects such as props, sound effects, and speech modulation in a unique and dramatic manner that enhances the understanding of the issuesin the problem statement.	Uses stage effects such as props, sound effects, and speech modulation in an effective manner to extend the understanding of the issues in the problem statement.	Limited use of stage effects and/or used in a manner that did not enhance the understanding of the issues in the problem statement.	No use of stage effects	Poor stage effects usage	5
Involvement of the class/ Examiners Questions Discussions Activities	Excellent and salient discussion points that elucidated material to developa deep understanding Appropriate and imaginative activities used to extend understanding in a creative manner	Questions and discussions addressed important information that developed understanding Appropriate activities used to clarify understanding	Questions and discussions addressed important superficial issues of the problem statement Limited use of activities to clarify understanding	Little or no attempt to engage the class / examiner in demonstrating their learning	Did not engagethe class / examiner and poor listening skills	1
Total						12

Case Results Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Problem outcome	The topic was well researched and all information and data included are accurate and fromreliable sources of informationlike high impact journals standards, etc. The proof was enough backed up with accurate data, analysis and reasoning beyond the classlearning. Outcome achieved beyond the problem brief	The topic was researched and most information and data were from reliable sources of information.The proof was backed up with good data and reasoning as taught in the class. Outcome achieved asper the problem brief	The topic was researchedbut information and data were only partly from reliable sources of information. The proof was not fully backed up with good dataor reasoning as taught in the class. Partial outcome achieved as per the problem brief	The topic was researched and data were not fromreliable sources. The proof was not backed up with data, analysis or reasoning as taughtin the class. Some outcome obtained as per the problem brief	Desired results not obtained, butsome relevant research was done. Outcome not obtained as per the problem brief	4
Applicationof class learning in problem solving	Made effective use of class principles, models and theories. Also used creativity to find effective results appropriate toindustry beyond class learning.	Made good use of class principles, models and theories Some creative ideas were explored to find desired outcome butwithin the framework of class learning	Made some use of class principles, models and theories No creative ideas or models explored	Made limited use of class principles, models and theories	Poorly applied class principals, models and theories	3
Response to Class / Examiners Queries	Queries Excellent response to comments and discussion with appropriate content supportedby theory/research	Good response to questions and discussionswith some connection made to theory/research	Satisfactory response to questions and discussionswith limited reference to theory/research	Limited responseto questions and discussions with no reference to theory/research	Poor or no response to questions and did not participate in the discussions.	2
Conclusions	Provides detailed and appropriate conclusion for theproblem statement	Provides appropriate conclusion for the problem statement	Provides adequate and mostly appropriate conclusions for the problem statement	Provides limited and somewhat appropriate conclusions for the problem statement	Has not provided appropriate conclusions for the problem statement.	4
Total						13/20

Case Innovation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Finding new processes / models / approaches	The newly discovered processes / models / approaches are of good quality and relevant	The newly discovered processes / models / approaches are of appropriate quality but limited relevance	The newly discovered processes / models / approaches have limited application but relevant to the problem	The newly discovered processes / models / approaches has restricted application	No new processes / models / approaches were identified	5
Proposing ideas and innovative solutions in terms of processes / models /approaches and how they can be applied to solve the problem on hand	Various ideas and innovative solutions have been proposed and their application have been clearly outlined	Various ideas and innovative solutions have been proposed as well as the outline of the process to apply them	Some ideas or innovative solutions have been proposed but the process of applying them hasn't been specified	Few ideas have been proposed	No ideas or innovative solutions have been proposed	3
Using creativity techniques to provide and reason good ideas which are original and unconventional	Wherever necessary creativity techniques are utilized to analyze and solve the problem	Creativity techniques are frequently utilized in more than 50% of the occasions	Creativity techniques are utilized at times in less than 50% of the occasions	Creativity techniques are used a few times only	Creativity technique are not utilized to analyze and solve the problem	2
Finding constraints and weak points in existing processes / models / approaches or methods	Constraints and weak points are understood	Constraints and weak are identified	A critical analysis is undertaken	Only a description of the working process and methods are provided	No constraints or weak points have been identified.	3
Total						13/20

Sl. No	Description
1.	Town Planning by S.C Rangwala
2.	Urban and Regional Development Plan Formulations and implementation (URDFI) guidelines.
3.	Peter Hall P., (2014), “Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880”, Wiley and sons, Hoboken
4.	Fainstein S., (2012), “Readings in Planning Theory”, 3rd Edition, Blackwell Publishing, Oxford.
5.	UN Habitat, (2009), “Planning Sustainable Cities”, UNHSP, Earthscan, London
6.	Dwivedi, R. M. (2007). Urban Development and Housing in India 1947 to 2007, New Century Publications, New Delhi.
7.	Chattopadhyay, S. (2009). New Essays on inclusive housing, Macmillan, Delhi.

Required Course Facilities:

1. Lab equipment’s list with appropriate specifications (Batch size:20)
2. Related Industry connect to conduct industry classes
3. Appropriate Virtual practice links.

Government of Karnataka
Department of Collegiate and Technical Education
JSS Polytechnic for the Differently Abled (Autonomous)

Sustainable Architecture and Alternate Construction Techniques

Programme	Architecture Assistantship	**Semester**	V
Course Code	**1454**	**Type of course** L:T:P	128:64:384 (8:4:24)
Specialization	**Sustainable Architecture And Alternate Construction Techniques**	**Credits**	24
CIE Marks	240	**SEE Marks**	160

Introduction:

Sustainable Architecture and Alternate Construction Techniques is a subject which makes the student to learn and understand the necessity and importance of sustainable goals and the design strategies to achieve economy in construction by continuously involving themselves in practice through research and investigation into spatial relationships and report on any qualitative aspect of landscape design sustainable Architecture schemes and Construction techniques. Also, analyzing various alternate construction techniques.

Pre-requisite

Basic knowledge of architectural drawing and Building materials.

Course Cohort Owner: A Course Cohort Owner is a faculty from the core discipline, who is fully responsible for one specialized field of study and the cohort of students who have chosen to studythat specialized field of study.

Guidelines for Cohort Owner

1. Each Specialized field of study is restricted to a Cohort of 20 students which could include students from other relevant programs.
2. One faculty from the Core Discipline shall be the Cohort Owner, who for teaching and learning in allied disciplines can work with faculty from other disciplines or industry experts.
3. The course shall be delivered in boot camp mode spanning over 15 weeks of study, weekly developmental assessments and culminating in a mini capstone.

4. The industry session shall be addressed by industry subject experts (in contact mode/online / recorded video mode) in the discipline only.
5. The cohort owner shall be responsible to identify experts from the relevant field and organize industry session as per schedule.
6. Cohort owner shall plan and accompany the cohort for any industrial visits.
7. Cohort owner shall maintain and document industrial assignments, weekly assessments, practices and mini project.
8. The cohort owner shall coordinate with faculties across programs needed for their course to ensure seamless delivery as per time table
9. The cohort owner along with classroom sessions can augment or use supplementary teaching and learning opportunities including good quality online courses available on platforms like Karnataka LMS, Infosys Springboard, NPTEL, Unacademy, SWAYAM , etc.
10. Cohort owner shall guide the cohorts for the selection and execution of mini project.

Course outcome: A student should be able to

CO 1	Identify the potential and limitations of sustainable architecture.
CO 2	Prepare a small project adopting Sustainable goals and Alternate Construction Techniques.
CO 3	Analyze Sustainable goals and alternate construction techniques to develop basic Skills required in handling sustainable design projects in a holistic manner.
CO 4	Study and apply alternate construction techniques.

Detailed course plan

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 1 , students will be able to,** 1. Understand the Sustainable development and architecture. 2. Identify the green Building Materials and their advantages.							
1	1	1,2,3,5	1	Introduction to Sustainable Development and Architecture, Definition of Green building, aim and purpose.	1		3	**Audio - Video Presentation on sustainable architecture/ goals**.	1		2
	1	1,2,3,5	2	Environmental impact of buildings. List Main five strategies to achieve green efficiency.	1		3	Collect information and samples of sustainable materials.	1		2
	1	1,2,3,5	3	Green building materials like Bamboo, Hi-Tech Glass : Electrochemical glass , Nano - glass Dye-sensitive glass, Low - e -glass	1		3	Make a report on the information collected on Green building materials and highlight their advantages**.**	1		2
	1	1,2,3,5	4	Contemporary innovative building materials and their applications in Architecture.	1		3	**Audio - Video Presentation on contemporary innovative building materials.**	1		2
	1	1,2,3,5	**5**	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	1	1,2,3,5	**6**	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 2 , students will be able to,** 1. Understand the alternate building materials. 2. Summarizing the thoughts on alternate construction technologies.							
2	1	1,2,3,5	1	**Tutorial (Peer discussion on Industrialassignment)**		4		Make a report of contemporary innovative building materials	2		1
	1	1,2,3,5	2	Contemporary innovative building materialsand their applications in Architecture. a. Carbon Fibre Reinforced polymer. b. ACP (Aluminium Composite Panels) c. Aero gels and composites	1		3	Make a report of contemporary innovative building materials. a. Carbon Fibre Reinforced polymer. b. ACP (Aluminium Composite Panels) c. Aero gels and composites	1		2
	1	1,2,3,5	3	Introduction to Alternate building materials and construction technologies 1. CLC Blocks (Cellular Light Weight Concrete) 2. Fly ash Bricks.	1		3	Collect the information about fly ash bricks, and prepare the report.	1		2
	1	1,2,3,5	4	Introduction to Alternate building materials and construction technologies a. AAC blocks (Autoclaved aerated concrete) b. Cement Fibre board	1		3	Collect the information about Cement Fibre board and prepare the report .	1		2
	1	1,2,3,5	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			3
	1	1,2,3,5	6	**Industry class and assignment** • **Presentation on the above topics by professionals**	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 3 , students will be able to,** 1. Understand the method of Rainwater harvesting and Water conservation. 2. Analyze the effects of urban heat island.							
3	1	2,3,4,5	1	**Tutorial (Peer discussion on Industrialassignment)**		4		Introduction to Green roofs, reflective roofs, cool pavements. Collect Information on same and prepare a power point presentation.	2		1
	1	2,3,4,5	2	Analyze effect of urban heat island effect. Identify and Write a report on how to Maximize comfort by Proper orientation of a building.	1		3	Make a chart showing graphical representation of structure of atmosphere physical layering and compositional layering.	1		2
	1	2,3,4,5	3	Solar radiation, Night radiation, Greenhouse effect, Winds, Condensation and precipitation, Global warming Prepare a presentation on all the effects mentioned above.	1		3	Advantages and need of Day lighting, ventilation in built environment. Identify methods of obtaining natural light and ventilation.	1		2
	1	2,3,4,5	4	Water conservation and efficiency: waste water treatment. Reducing landscape water demand by proper irrigation systems. Prepare schematic/flowchart on sequence of water treatment.	1		3	Introduction to Rainwater harvesting, methods in Water efficient plumbing systems. Visit an existing rainwater harvesting system in and around the campus.	1		2
	1	2,3,4,5	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			3
	1	2,3,4,5	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 4 , students will be able to,** 1. Identify The goals of Global Sustainability. 2. Acquire Knowledge on Passive design principles.							
4	1	2,3,4,5	1	**Tutorial (Peer discussion on Industrialassignment)**		4		Introduction and importance of natural energy resources and uses.	2		1
	1	2,3,4,5	2	Identify Global Sustainable goals and methods to achieve sustainability in built Environment.	1		3	Conduct a Survey on power generation through roof top solar unit.	1		2
	1	2,3,4,5	3	Passive design principles. Passive and Low Energy Cooling Systems (based on shedding heat to air): Principles and types: Comfort ventilation, selective ventilation, chimney, and stack exhaust, climates applicable, air circulation.	1		3	Audio Video presentation on application of passive design strategies.	1		2
	1	2,3,4,5	4	Passive and Low Energy Heating Systems: Principles and types: Direct Gain, Indirect Gain (Trombe walls, thermal storage walls), Isolated Gain (sunspaces, greenhouses, convective loops) Design Factors Affecting Ventilation: Opening orientation, Size, Location, Internal Subdivision ofSpace, Cross Ventilation. Ventilation coupled withthermal storage mass Audio video presentation.	1		3	Prepare a model demonstration trombe wall technology.	1		2
	1	2,3,4,5	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			3
	1	2,3,4,5	6	**Industry Class- and Industry Assignment** • **Presentation on the above topics by professionals**	5						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 5 , students will be able to,** 1. Understand and Analyze the climatic zones of India. 2. Prepare a chart showing climatic factors.							
5	1	2,3,4,5	1	**Tutorial (Peer discussion on Industrialassignment)**		4		Introduction to climatology, sun path and orientation of building. Audio video presentation of real projects.	2		1
	2	2,3,4,5	2	Air temperature, Air pressure, Humidity, Sky condition, Solar radiation, Night radiation	1		3	Develop graphics representing structure of atmosphere, physical layering and compositional layering.	1		2
	2	2,3,4,5	3	Analyze climatic zones of India : Hot and Dry, Warm and Humid, Moderate, Composite, Cold – both Humid and Dry and identify architectural characteristics suitable for different zones .	1		3	Consider a case and Design Sun shade/sun breakers.	1		2
	2	2,3,4,5	4	Collect data about climatic condition of your locality.	1		3	Make a chart showing climatic factors of your locality.	1		2
	2	2,3,4,5	5	**CIE 1– Written and practice test**	4			**Assessment Review and corrective action**			3
	2	2,3,4,5	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 6, students will be able to,** 1. Understand the Thermal efficiency in buildings. 2. Highlight on the Mechanisms for Ventilation.							
6	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Visit a residential building and study the ventilation system.	2		1
	2	1,2,3	2	Ventilation, Air Movement, and Air Change: Functions of ventilation: Health, Thermal Comfort, Structural Cooling,	1		3	Prepare a report with sketches and images highlighting the natural ventilation adopted in the building.	1		2
	2	1,2,3	3	Mechanisms for Ventilation: Natural and Created Thermal Effects, Natural, and Created Pressure Differences Forced Ventilation, Air Recirculation.	1		3	Prepare a report with sketches and images highlighting the Mechanisms for Ventilation.	1		2
	2	1,2,3	4	Thermal efficiency in buildings. Green roof, cool roof, filler slab, rat trap bond	1		3	Audio - Video Presentation on Green roof, cool roof, filler slab, rat trap bond	1		2
	2	1,2,3	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class- and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 7, students will be able to,** 1. Understand the Indoor environmental quality. 2. Highlight on the Mechanisms for Ventilation.							
7	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Visit a residential building and study the Green roof, cool roof, filler slab, rat trap bond	2		1
	2	1,2,3	2	Thermal efficiency in buildings. Green roof, cool roof, filler slab, rat trap bond	1		3	Prepare sketches of green roof, cool roof, filler slab and rat trap bond..	1		2
	2	1,2,3	3	Thermal efficiency in buildings Green building rating system in India	1		3	Audio - Video Presentation on Green building rating system in India.	1		2
	2	1,2,3	4	Indoor environmental quality, factors affecting indoor environmental quality, design considerations for enhancing indoor environmental quality.	1		3	Visit a green building and make a report of indoor environmental quality of that building giving your analysis.	1		2
	2	1,2,3	5	**CIE 2 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 8 , students will be able to,** 1. Understand the Waste Management and Recycling, 2. Distinguish the Types of Wastes.							
8	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Continuation of the above practice session.	2		1
	2	1,2,3	2	Introduction to Waste management Waste Management and Recycling, Wastes generated by Human Habitat – Solid, liquid and Gaseous.	1		3	Make a report on analysis of waste management system adopted in Bhopal.	1		2
	2	1,2,3	3	Types of Wastes- Municipal, Industrial, Agricultural, Toxic, Bio-Medical, Hazardous, Electronic, Radioactive, etc.	1		3	Make a report on analysis of waste management system adopted in Madhya Pradesh.	1		2
	2	1,2,3	4	Overview of laws /rules governing waste management in India	1		3	Collect laws/rules governing waste management in India and make a report.	1		2
	2	1,2,3	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 9 , students will be able to,** 1. Understand the Importance of Community participation in wastemanagement. 2. Designing of infrastructure for efficient and effective solid waste management.							
9	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Continuation of the above practice session.	2		1
	2	1,2,3	2	Importance of Community participation in waste management Impact on health and sanitation.	1		3	Prepare report on technologies available for processing, treatment and disposal of solid waste.	1		2
	2	1,2,3	3	Waste management in India– Current scenario, challenges, responses, and pitfalls, Contemporary Technologies and infrastructurefor waste management	1		3	Prepare a report on Waste management in India– Current scenario,	1		2
	2	1,2,3	4	Designing infrastructure for efficient and effective solid waste management from generation point to final disposal - Waste bins, cold rooms, transport mechanisms, landfill sites, incinerators, composting, etc.	1		3	Visit a site to study the processing, treatment and disposal of solid waste.	1		2
	2	1,2,3	5	**CIE 3 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class- and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 10 , students will be able to,** 1. Design a residential green building. 2. Prepare architectural drawings for a residential green building.							
10	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Prepare a report on recycling waste as an alternative material for buildings, landscape, and other products. Specifications and construction methods for using recycled waste.	2		1
	2	1,2,3	2	Visit a green residential building and study its features.	1		3	Prepare a case study report.	1		2
	2	1,2,3	3	Design a residential green building for a given site and requirements.	1		3	Prepare architectural drawings for the same.	1		2
	2	1,2,3	4	Prepare architectural drawings for the same.	1		3	Suggest suitable materials to achieve green building concept	1		2
	2	1,2,3	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class- and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 11 , students will be able to,** 1. Understand the concept of net zero buildings. 2. Analyze the Efficient lighting technologies, energy efficient appliances for heating and air-conditioning.							
11	2	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Concepts of embodied energy, operational energy and life cycle energy. Prepare a report on embodied energy.	2		1
	2	1,2,3	2	Guidelines for energy efficiency of built environment with respect to HVAC.	1		3	Energy efficient building envelopes. Methods to reduce operational energy. Prepare a report on methods to reduce operational energy.	1		2
	2	1,2,3	3	Zero ozone depleting potential (ODP) materials, wind energy harvesting, Energy metering and monitoring, concept of net zero buildings Prepare a sheet on ODP materials and wind energy.	1		3	Efficient lighting technologies, energy efficient appliances for heating and air-conditioning. Prepare a sheet on different lightings required for energy efficiency.	1		2
	2	1,2,3	4	Analysis and study of - CII- Sohrabji Godrej Green Business Centre, Hyderabad. Prepare report on CII Godrej building.	1		3	Analysis and study of - CII- Sohrabji Godrej Green Business Centre, Hyderabad. Prepare report on CII Godrej building.	1		2
	2	1,2,3	5	**CIE 4 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	2	1,2,3	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 12 , students will be able to,** 1. Understand the Role and scope of Vernacular Architecture. 2. Analyze the Vernacular and traditional architecture in varied climatic zones.							
12	2	1,2,3	1	**Tutorial (Peer discussion on Industrialassignment)**		4		Earthen architecture: Introduction, Types of soil and techniques used in construction. Various construction methods: COB ,Rammedearth, adobe, pressed bricks, wattle and daub.	2		1
	3	1,2,3	2	Vernacular architecture, Role and scope of Vernacular architecture. Characteristics of Vernacular architecture, Factors influencing Vernacular architecture.	1		3	Factors influencing Vernacular architecture.	1		2
	3	1,2,3	3	Vernacular and traditional architecture of India and the world in varied climatic zones.	1		3	Visit a nearby village and study any house built in Vernacular style.	1		2
	3	1,2,3	4	Study of features of vernacular architecture withan example.	1		3	Prepare report on vernacular architecture of Bhonga settlement in kucth region of Gujarat	1		2
	3	1,2,3	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	3	1,2,3	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**			**5**				

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 13 , students will be able to,** 1. Understand the need of Alternative building technologies. 2. Collect information on alternative building materials.							
13	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Develop rat trap bond using conventional bricks.	2		1
	3	1,2,3	2	Alternative building materials: Introduction, Need, advantages over conventional materials.	1		3	Collect information on alternative building materials	1		2
	3	1,2,3	3	Hollow concrete block, Fly ash bricks, Rice husk ash, Ferro cement, Tire Veneer, Plastic wood, Synthetic Fibre, Recycled aggregate, M-sand , Stabilized soil blocks, Fibre Cement Composites	1		3	Make a report on alternative building materials highlighting their advantages and applications.	1		2
	3	1,2,3	4	Alternative building technologies: Introduction, Contribution of Laurie Baker ,Rat trap bond, filler slab, arches and domes, terracotta roofing and flooring	1		3	Prepare a report on Laurie Baker's contribution to alternate building technology.	1		2
	3	1,2,3	5	**CIE 5 – Written and practice test**	4			**Assessment Review and corrective action**			**3**
	3	1,2,3	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 14 , students will be able to,** 1. Understand the Alternative technique for foundation and walls. 2. Identify the Alternative techniques for roof.							
14	3	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Visit any residential building with low cost construction	2		1
	4	1,2,3,4, 5,6,7	2	Alternative technique for foundation : Arched foundation Alternative technique for wall: Composite wall. Cavity walls.	1		3	Prepare a report with relevant drawings.	1		2
	4	1,2,3,4, 5,6,7	3	Alternative techniques for roof: jack arch roofing, Madras terrace roofing, Deck roofing.	1		3	Prepare sectional drawings for the mentioned roof systems.	1		2
	4	1,2,3,4, 5,6,7	4	Rammed earth construction techniques.	1		3	Prepare a report on various types of rammed earth construction.	1		2
	4	1,2,3,4, 5,6,7	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	4	1,2,3,4, 5,6,7	6	**Industry Class and Industry Assignment** • **Presentation on the above topics by professionals**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes			**Learning outcomes: At the end of the week 15 , students will be able to,** 1. Understand about Prefabricated construction and its advantages. 2. Collect data of various components and dimensions of prefabricated constructions.							
15	4	1,2,3	1	**Tutorial (Peer discussion on Industrial assignment)**		4		Visit any site where prefabricated work is going on and study various components.	2		1
	4	1,2,3,4, 5,6,7	2	Prefabricated construction: Introduction, necessity and advantages.	1		3	Collect data of various components and dimensions of prefabricated constructions .	1		2
	4	1,2,3,4, 5,6,7	3	Prefabricated panels: wall, sandwich panels, roof panels, mild steel prefabricated panel.	1		3	Prepare report showing sketches of assembly of components on site.	1		2
	4	1,2,3,4, 5,6,7	4	Waffle shell roofing, Ribbed slab, prefabricated brick panel system for roofing, funicular shell roofing,	1		3	Collect images of Waffel shell, Ribbed slab, Prefabricated brick panel, Funicular shell and make a report.	1		2
	4	1,2,3,4, 5,6,7	5	**Weekly Developmental Assessment**				**Assessment Review and corrective action**			**3**
	4	1,2,3,4, 5,6,7	6	**Industry Class and Industry Assignment**	**5**						

Week	C O	P O	Days	1st session (10 am to 2 pm)	L	T	P	2ND session (2.30 pm to 5.30 pm)	L	T	P
	Learning outcomes										
16				**Internship** a) Secondary research on various industries m and their operations to identify at least 3 companies along with the areas of work interest and develop an internship plan that clearly highlights expectations from the industry during the internship. b) Design and develop a cover letter for an internship request to all 3 identified companies and the resume to be submitted to potential companies. c) Prepare for an internship interview to highlight your interests, areas of study, career aspirations and personnel competence – including the areas of learning you expect to learn during internship.				**Project** a) Identification of the problem statement (from at least 3 known problems) the students would like to work as part of the project – either as provided by faculty or as identified by the student. Document the impact the project will have from a technical, social and business perspective. b) Design and develop the project solution or methodology to be used to solve at least one of the problems identified. c) Prepare a project plan that will include a schedule, WBS, Budget and known risks along with strategies to mitigate them to ensure the project achieves the desired outcome.			

CIE and SEE Assessment Methodologies

CIE Assessment	Assessment Mode	Duration In hours	Max Marks
Week 5	CIE 1– Written and practice test	4	30
Week 7	CIE 2– Written and practice test	4	30
Week 9	CIE 3– Written and practice test	4	30
Week 11	CIE 4– Written and practice test	4	30
Week 13	CIE 5– Written and practice test	4	30
Week 16	On line Course work (Minimum 10 hours online course with certification from (SWAYAM/NPTEL/Infosys Springboard)		40
	Profile building for Internship / Submission of Synopsys for project work		20
Portfolio evaluation (Based on industrial assignments and weekly developmental assessment) *			30
TOTAL CIE MARKS (A)			**240**
SEE 1 - Theory exam conducted for 100 marks 3 hrs duration reduced to 60 marks		**3**	60
SEE 2 – Practical		**3**	100
TOTAL SEE MARKS (B)			**160**
TOTAL MARKS (A+B)			**400**

*****The industrial assignment shall be based on peer-to-peer assessment for a total of 10 marks (on a scale of 1 to 10) and in the event of a group assignment the marks awarded will be the same for the entire group, the developmental assessment will be for a total of 20 marks and based on MCQ/case study/demonstration and such other assignment methods

Assessment framework for CIE (1 to 5)

Note : Theory to be conducted for 1 hour and practice for 3 hours, total duration of exam – 4 hours

Programme	**Architecture Assistantship.**	**Semester**	**V**
Course	**Sustainable Architecture And Alternate Construction Techniques**	**Max Marks**	**30**
Course Code	**1454**	**Duration**	**4 hours**
Name of the course coordinator			

Note: Answer one full question from each section.

Qn.No	Question	CL L3/L4	CO	PO	Marks
	Section-1 (Theory) – 10 marks				
1.a)	Enumerate the importance of Green architecture.	**L3**	1	1,2,3	5
b)	List and elaborate the strategies to achieve Green efficiency.	**L3**	1	1,2,3	5
2.a)	Classify the various green materials and brief any one material.	**L3**	2	1,2,3	4
b)	Identify the qualities of green materials.	**L3**	2	1,2,3	4
c)	Define passive design principles.	**L3**	2	1,2,3	2
	Section-2 (Practical) - 20 marks				
3)	Prepare a drawing on roof top rain water harvesting system and label the parts.	**L4**	3	1,2,3	10
4)	Prepare a drawing on trombe wall and name the parts.	**L4**	3	1,2,3	10

Note : Theory questions shall be aligned to practical questions

Assessment framework for SEE 1 (Theory)

Programme : Architecture Assistantship.
Semester : V
Course : Sustainable Architecture and alternate construction techniques **Max Marks : 100**
Course Code : 1454 **Duration : 3Hrs**

Instruction to the Candidate: Answer one full question from each section.

Q.No	Question	CL	CO	Marks
	Section-1			
1.a)	Discuss, aim and purpose of green building and the environmental impact of buildings.	L3/l4	1	10
b)	Discuss a green material Bamboo.	L3/l4		10
2.a)	Discuss a green material Ferro cement.	L3/l4		10
b)	Write a note on fly ash blocks and AAC blocks.	L3/l4		10
	Section-2			
3.a)	Distinguish between green roofs and cool roofs.	L3/l4	2	10
b)	Discuss the need and advantage of day lighting.	L3/l4		10
4.a)	Prepare a flowchart on sequence of water treatment.	L3/l4		10
b)	Summarize rooftop rain water harvesting system.	L3/l4		10
	Section- 3			
5.a)	Discuss the principles of solar passive design.	L3/l4	3	10
b)	List the climatic zone of India. Discuss the architectural characteristics of any one zone.	L3/l4		10
6.a)	Discuss guidelines for energy efficiency w.r.t to HVAC.	L3/l4		10
b)	Analyze Green features of CII Godrej building. Hyderabad.	L3/l4		10
	Section-4			
7.a)	Discuss need and advantage of alternative building material over conventional materials.	L3/l4	4	10
b)	Write a note on stabilized soil blocks and fibre cement composites panels.	L3/l4		10
8.a)	Summarize Laurie bakers' low cost techniques.	L3/l4		10
b)	Discuss jack arched roofing with neat sketch.	L3/l4		10
	Section-5			
9.a)	Write a note on prefabricated construction.	L3/l4	4	10

b)	Discuss waffle shell roofing with neat sketch.	L3/l4		10
10.a)	Write a note on ribbed slab with neat sketch.	L3/l4		10
b)	Discuss filler slab with a neat sketch.	L3/l4		10

Scheme of Evaluation for SEE 2

Sl. No	**Description**	**Marks**
1	Case submission	20
2	Case presentation	20
3	Case innovation	20
4	Result	20
5	Viva voce	20
Total		**100**

Case Submission / Content Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Identification of the main issues / problem	Identifies and understands all the main issues inthe problem statement	Identifies and understands most of the main issues in theproblem statement	Identifies and understands some of the issues in the problem statement	Identifies and understands a few ofthe issues in the problem statement	Identifies limitedissues in the problem statement	5
Analysis of the issues	Insightful and thorough analysis ofall the issues	Thorough analysis ofmost of the issues	Superficial analysis of some of the issues in theproblem statement	Incomplete analysis ofthe issues	No analysis of theissue	4
Comments on effective solutions / strategies (The solution may be inthe problem statement already or proposed by you)	Well documented, reasoned and pedagogically appropriate comments on solutions, or proposals for solutions, to all issuesin the problem statement	Appropriate, well thought out comments about solutions, or proposals for solutions,to most of the issues in the problem statement	Superficial and / or inappropriate solutionsto some of the issues inthe problem statement	Little and/or inappropriate solutions to all of the issues in the problemstatement	No action to all issuesin the problem statement	2
Links to course learning and additional research	Excellent research into the issues with clearly documentedlinks to course learning and beyond.	Good research and documented links to thematerials read during the course	Limited research anddocumented links to any readings	Incomplete research and links to any reading.	No research or linksto any reading	3
Total						14/20

Case Presentation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Delivery & Enthusiasm	Very clear and concise flow of ideas Demonstrates passionate interest in the topic and engagement with class / examiner	Clear flow of ideas Demonstrates interest in the topic and engagement with class /examiner	Most ideas flow but is lost at times Limited evidence of interest in and engagement with thetopic	Hard to follow the flow of ideas Lack of enthusiasm and interest	No flow in the presentation Poor presentation skills	4
Visuals	Visuals augmented and extended comprehension of the issues in unique ways	Use of visuals related to the topic	Limited use of visuals loosely related to the topic	No use of visuals	Poor visuals used and some visuals are not easy to understand its Relevance.	2
Staging	Uses stage effects such as props, sound effects, and speech modulation in a unique and dramatic manner that enhances the understanding of the issuesin the problem statement.	Uses stage effects such as props, sound effects, and speech modulation in an effective manner to extend the understanding of the issues in the problem statement.	Limited use of stage effects and/or used in a manner that did not enhance the understanding of the issues in the problem statement.	No use of stage effects	Poor stage effects usage	5
Involvement of the class/ Examiners Questions Discussions Activities	Excellent and salient discussion points that elucidated material to developa deep understanding Appropriate and imaginative activities used to extend understanding in a creative manner	Questions and discussions addressed important information that developed understanding Appropriate activities used to clarify understanding	Questions and discussions addressed important superficial issues of the problem statement Limited use of activities to clarify understanding	Little or no attempt to engage the class / examiner in demonstrating their learning	Did not engagethe class / examiner and poor listening skills	1
Total						12

Case Results Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Problem outcome	The topic was well researched and all information and data included are accurate and fromreliable sources of informationlike high impact journals standards, etc. The proof was enough backed up with accurate data, analysis and reasoning beyond the classlearning. Outcome achieved beyond the problem brief	The topic was researched and most information and data were from reliable sources of information.The proof was backed up with good data and reasoning as taught in the class. Outcome achieved asper the problem brief	The topic was researchedbut information and data were only partly from reliable sources of information. The proof was not fully backed up with good dataor reasoning as taught in the class. Partial outcome achieved as per the problem brief	The topic was researched and data were not fromreliable sources. The proof was not backed up with data, analysis or reasoning as taughtin the class. Some outcome obtained as per the problem brief	Desired results not obtained, butsome relevant research was done. Outcome not obtained as per the problem brief	4
Applicationof class learning in problem solving	Made effective use of class principles, models and theories. Also used creativity to find effective results appropriate toindustry beyond class learning.	Made good use of class principles, models and theories Some creative ideas were explored to find desired outcome butwithin the framework of class learning	Made some use of class principles, models and theories No creative ideas or models explored	Made limited use of class principles, models and theories	Poorly applied class principals, models and theories	3
Response to Class / Examiners Queries	Queries Excellent response to comments and discussion with appropriate content supportedby theory/research	Good response to questions and discussionswith some connection made to theory/research	Satisfactory response to questions and discussionswith limited reference to theory/research	Limited responseto questions and discussions with no reference to theory/research	Poor or no response to questions and did not participate in the discussions.	2
Conclusions	Provides detailed and appropriate conclusion for theproblem statement	Provides appropriate conclusion for the problem statement	Provides adequate and mostly appropriate conclusions for the problem statement	Provides limited and somewhat appropriate conclusions for the problem statement	Has not provided appropriate conclusions for the problem statement.	4
Total						13/20

Case Innovation Evaluation Rubrics

Evaluation Parameters	5	4	3	2	1	Student Score
Finding new processes / models / approaches	The newly discovered processes / models / approaches are of good quality and relevant	The newly discovered processes / models / approaches are of appropriate quality but limited relevance	The newly discovered processes / models / approaches have limitedapplication but relevant to the problem	The newly discoveredprocesses / models / approaches has restricted application	No new processes / models / approaches were identified	5
Proposing ideas and innovative solutions in terms of processes / models /approaches and howthey can be applied to solve the problem on hand	Various ideas and innovative solutions have been proposed and their application have been clearly outlined	Various ideas and innovative solutions have been proposed as well as the outline of the process to apply them	Some ideas or innovative solutions have been proposed but the process of applying them hasn't been specified	Few ideas have beenproposed	No ideas or innovative solutions have been proposed	3
Using creativity techniques to provide and reason good ideas which are original and unconventional	Wherever necessary creativity techniques are utilized to analyzeand solve the problem	Creativity techniques are frequently utilizedin more than 50% of the occasions	Creativity techniques areutilized at times in less than 50% of the occasions	Creativity techniques are useda few times only	Creativity technique are not utilized to analyze and solvethe problem	2
Finding constraints and weak points in existing processes / models / approaches or methods	Constraints and weak points are understood	Constraints and weakare identified	A critical analysis is undertaken	Only a description ofthe working processand methods are provided	No constraints or weak points have been identified.	3
Total						13/20

References

Sl. No	Description
1.	Indian Green Building Council.
2.	Energy Efficient Buildings-TERI India Publications.
3.	. TEDDY (TERI's year books), TERI, New Delhi
4.	Sustainable Building Design Manual Vol 1 and 2, TERI, New Delhi.
5.	Sustainable Hospitality Alliance – Advancing responsibility
6.	3.0 The Social Benefits of Sustainable Design (energy.gov)
7	CI - LIMA-and-FARIA_Eco-efficient-earthen-plasters_ICNF2015.pdf (unl.pt)

Required Course Facilities:

1. Lab equipments list with appropriate specifications (Batch size:20)
2. Related Industry connect to conduct industry classes
3. Appropriate Virtual practice links