ADVANCED ARCHITECTURAL DESIGN **Course Code : 325001**

Programme Name/s	**: Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/**
Programme Code	**: AA/ AT/ IX/ IZ**
Semester	**: Fifth**
Course Title	**: ADVANCED ARCHITECTURAL DESIGN**
Course Code	**: 325001**

I. RATIONALE

Advanced Architecture Design course focuses on various types of Campus design such as Residential/ Commercial/ Institutional campuses. These designs are based on the client / User's requirements including response to the context specific factors like socio-economic, socio-cultural, environmental etc. The design study has been carried out considering the total campus area as 7000 sqm. to 7500 sqm.(AA/AT). Interior design students can focus on the on the holistic interior design of the campus with considerations to lobbies, community areas etc.(IX/IZ)

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

Learner will be able to design a given Residential/ Commercial/ Institutional campus considering various aspects such as zoning, circulation within site, distribution of built and open spaces, activity relationships, adjacencies within site and its context.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Develop a pre-design concept of a given project with respect to anthropometry and ergonomics aspects.
- CO2 - Deign a given project using basic standard of zoning and planning.
- CO3 - Prepare different 2D and 3D drawings of a given project.
- CO4 - Develop a layout plan of various services for a given project.
- CO5 - Develop the computer aided drawings using different presentation skills.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical							
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325001	ADVANCED ARCHITECTURAL DESIGN	AAD	DSC	2	-	6	2	10	5	-	-	-	-	-	50	20	50#	20	25	10	125

Total IKS Hrs for Sem. : 2 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Enlist basic anthropometry data for given campus spaces. TLO 1.2 Develop mind maps to conceptualise pre-design requirements. TLO 1.3 Analyse online and book case of a given campus. TLO 1.4 Develop a pre-design concept for a given project.	**Unit - I Pre-design study in context with anthropometry and ergonomics.** 1.1 Human scaling with basic anthropometry data assembling for various campus spaces. 1.2 Predesign concept, check lists and list of space requirements. 1.3 Case studies in context of the project. 1.4 Pre-design concepts of projects.	Demonstration Cooperative Learning Lecture Using Chalk-Board Presentations Case Study
2	TLO 2.1 Develop a site plan of a given campus indicating bubble diagram & zoning. TLO 2.2 Prepare site drawing as per scales provided. TLO 2.3 Prepare alternative plans for a given campus. TLO 2.4 Develop working model of layout plan using material board.	**Unit - II Zoning, planning and area statements** 2.1 Predesign area statements for zoning & planning. 2.2 Site documentation of a . site plan. 2.3 Planning & preparing alternatives plans for understanding of best possible layout / planning. 2.4 Schematic layout & working Models with material board.	Demonstration Presentations Lecture Using Chalk-Board Site/Industry Visit Collaborative learning Model Video Demonstrations Cooperative Learning

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Draw various layout plans as per the given scale. TLO 3.2 Draw sections as per the given scale. TLO 3.3 Develop 3D views, sketches & perspective drawings.	**Unit - III Planning ,designing & 3D modelling.** 3.1 Scaled layout and sections to understand and demonstrate design. 3.2 Sections with all structural indications and levels. 3.3 3D sketches and views, concepts and design related drawing and their solutions.	Model Presentations Video Demonstrations Hands-on Lecture Using Chalk-Board Collaborative learning
4	TLO 4.1 Draw structural elements of a given design project.(AA/AT). TLO 4.2 Enlist different services and its importance.(AA/AT/IX/IZ). TLO 4.3 Prepare service drawings pertaining to the electrical, plumbing, rainwater harvesting and fire fighting in services (AA/AT) TLO 4.4 Draw layout plans for flooring, reflected ceiling, electrical with lighting, HVAC and networking.(IX / IZ) TLO 4.5 Draw coordination layout showing all overlapping services.(IX / IZ)	**Unit - IV Structural design development ,Service Layouts & Technical drawings** 4.1 Study model and structural requirements. (AA/AT). 4.2 Services and its important points for designing (AA/AT/IX/IZ). 4.3 Service drawings for electrical, Plumbing, Rainwater Harvesting and Fire fighting services. (AA/AT) 4.4 Flooring, Reflected ceiling, Electrical layout, HVAC and networking layouts. (IX / IZ). 4.5 Overlay drawings / coordination layout of all services. (IX / IZ)	Video Demonstrations Site/Industry Visit Collaborative learning Case Study Lecture Using Chalk-Board
5	TLO 5.1 Prepare computer aided drawings of a given project. TLO 5.2 Prepare presentation drawings using different methodologies. TLO 5.3 Prepare final portfolios of a given project.	**Unit - V Project development - Computer skill based.** 5.1 Transfer prepared manual drawings to software driven outcomes. 5.2 Presentation methodologies using softwares. 5.3 Preparation of final portfolios.	Collaborative learning Flipped Classroom Collaborative learning Model

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Prepare a report on collected anthropometry data for a given project.	1	Collection of anthropometry data for a given project.	4	CO1
LLO 1.1 Prepare a report on collected anthropometry data for a given project.	1	Learning through History of Architecture & design	4	CO1
LLO 2.1 Prepare a mind map & concept drawings for a given project.	2	Prepararation of Mind map and concept drawings for a given project.	4	CO1 CO2
LLO 3.1 Prepare one online & one book case study report for a given project.	3	Preparation of Case Study report for a given project.	4	CO1 CO3
LLO 4.1 Prepare zoning layouts with area statements on tracing sheets – Zoning layouts (minimum 3/5 alternatives) .	4	Preparation of Bubble Diagram & zoning Layout for a given project.	6	CO2 CO3

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 5.1 Prepare the site analysis report for a given project.	5	Preparation of Site Analysis Report for a given project..	4	CO2
LLO 6.1 Prepare the alternative options of site layout plan of given project.	6	Preperation of site layout plan.for a given project..	4	CO2
LLO 7.1 Prepare the final site plan of a given project to a given scale.	7	Preperation of final site plan for a given project..	3	CO3
LLO 8.1 Draw preliminary design development sketches for the given design project.	8	Drawing preliminary design sketches of a given project.	3	CO3
LLO 9.1 Develop Architectural plans ,Furniture layout, Elevations & sections for a given project.	9	Developement of Architectural plans ,Furniture layout, Elevations & sections for a given project.	10	CO4
LLO 10.1 Prepare final Services Drawings & Service layouts (electrical , lighting, plumbing, fire fighting, reflected ceiling , HVAC, networking) of a given project.	10	Preparation of final Service (electrical , lighting, plumbing, fire fighting, reflected ceiling , HVAC, networking) drawings of a given project.	2	CO4
LLO 11.1 Develop 2-D drawings using Auto cad software.	11	Developement of 2-D drawings using Auto cad software.	2	CO5
LLO 12.1 Develop 3D drawing by using cad software.	12	Development of 3-d drawings by using autocad software.	4	CO5
LLO 13.1 Develop service drawings using AutoCad.	13	Development of service drawings using AutoCad.	4	CO5
LLO 14.1 Preparefinal portfolio of a given project.	14	Preparation of final portfolio of a given project.	6	CO5
LLO 15.1 Develop architectural model of a given project.	15	Development of architectural model of a given project.	6	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Develop a technically sound and sustainable built project with the help of online courses Software learning and preparing drawings, Mind maps and flow charts Case study data analysis & Mapping Material market survey & rate analysis
- Develop technically sound & sustainable built project with the help of online courses & software learning.

Assignment

- Conduct Campus visits for (Electrical, Plumbing, HVAC, Fire Fighting, etc.) collect technical information and student shall submit site reports
- Conduct market survey for architectural & interior products, finishes & prepare a report.
- Conduct visits for electrical, plumbing , HVAC, Fire fighting etc. & prepare a report.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	LCD projector & white screen for projection. A1 drafting board and all drafting tools, tracing paper, A1 size drawing sheets, A3Sketchbook, etc. Computer loaded with required software's – Auto CAD, Sketchup, Corel Draw,Photoshop, etc.. A1 plotter or printer facility for students.	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Pre-design study in context with anthropometry and ergonomics.	CO1	6	0	0	0	0
2	II	Zoning, planning and area statements	CO2	6	0	0	0	0
3	III	Planning ,designing & 3D modelling.	CO3	6	0	0	0	0
4	IV	Structural design development ,Service Layouts & Technical drawings	CO4	6	0	0	0	0
5	V	Project development - Computer skill based.	CO5	6	0	0	0	0
Grand Total				**30**	**0**	**0**	**0**	**0**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Some of the assignments will be given during the course will be formative assignments

Summative Assessment (Assessment of Learning)

- Some of the assignments will be submitted by the learner at the term end will be summative assessment

XI. SUGGESTED COS - POS MATRIX FORM

ADVANCED ARCHITECTURAL DESIGN **Course Code : 325001**

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	2	2	1	2	-	2			
CO2	3	3	3	1	2	-	2			
CO3	3	1	2	2	1	-	2			
CO4	3	2	2	2	1	-	2			
CO5	3	2	3	2	1	-	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	a + t research group	50 HYBRID BUILDINGS	ISBN-13:9788409188222
2	Christopher Alexander	The Timeless Way Of Building	Published by Oxford University Press, ISBN :139780195024029, 0195024028
3	Francis D. K. Ching	Architecture: Form, Space and Order	Published by Van Nostrand Reinhold, 1979; ISBN 10: 0442215355 / ISBN 13: 9780442215354
4	Joseph DeChiara, Julius Panero, Martin Zelnik	Time-Saver Standards for Interior Design and Space Planning	Publisher- McGraw Hill LLC, 9780071704656, 0071704655
5	Dean Schwanke	Mixed-Use Development Handbook (Development Handbook series)	Publisher ? : ? Urban Land Institute,U.S.; 2nd edition, ISBN-10 ? : ? 0874208882 ISBN-13 ? : ? 978-0874208887
6	Ranjit Gunewardane	Technical Standards and Design Guidelines: Mixed - Use Buildings	Publisher AuthorHouse, 2018 ISBN 1546243267, 9781546243267
7	Karlen Mark, Kate Ruggeri & Peter Hahn	Space Planning Basics	Published by Van Nostrand Reinhold, 1992 ISBN 10: 0442009704ISBN 13: 9780442009700
8	Maureen Mitton	Interior Design Visual Presentation: A Guide to Graphics, Models, and Presentation Techniques	Published by Wiley, 1999 ISBN 10: 0471292591ISBN 13: 9780471292593
9	Robert Rengel	Shaping Interior Space	Published by Fairchild Books, 2003 ISBN 10: 1563672219ISBN 13: 9781563672217

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	http://landezine.com/	Landscape architecture

ADVANCED ARCHITECTURAL DESIGN **Course Code : 325001**

Sr.No	Link / Portal	Description
2	https://www.archdaily.com/search/projects/categories/mixed-use-architecture	Architectural Projects for data collection and case study

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

ENTREPRENEURSHIP DEVELOPMENT AND STARTUPS **Course Code : 314014**

Programme Name/s	**: Architecture Assistantship/ Automobile Engineering./ Agricultural Engineering/ Architecture/ Fashion & Clothing Technology/ Dress Designing & Garment Manufacturing/ Food Technology/ Instrumentation & Control/ Instrumentation/ Interior Design & Decoration/ Interior Design/ Mechanical Engineering/ Mechatronics/ Medical Laboratory Technology/ Medical Electronics/ Production Engineering/ Printing Technology/ Surface Coating Technology/ Textile Technology/ Travel and Tourism/ Textile Manufactures**
Programme Code	**: AA/ AE/ AL/ AT/ DC/ DD/ FC/ IC/ IS/ IX/ IZ/ ME/ MK/ ML/ MU/ PG/ PN/ SC/ TC/ TR/ TX**
Semester	**: Fourth / Fifth / Sixth**
Course Title	**: ENTREPRENEURSHIP DEVELOPMENT AND STARTUPS**
Course Code	**: 314014**

I. RATIONALE

Entrepreneurship and Startup is introduced in this curriculum to develop the entrepreneurship traits among the students before they enter into the professional life. By exposing and interacting with entrepreneurship and startup eco-system, student will develop the entrepreneurial mind set. The innovative thinking with risk taking ability along with other traits are to be inculcated in the students through micro projects and training. This exposure will be instrumental in orienting the students in transforming them to be job generators after completion of Diploma in Engineering.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

• Develop project proposals for launching small scale enterprises and starts up.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Identify one's entrepreneurial traits.
- CO2 - Use information collected from stakeholder for establishing/setting up/founding starts up
- CO3 - Use support systems available for Starts up
- CO4 - Prepare project plans to manage the enterprise effectively

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
314014	ENTREPRENEURSHIP DEVELOPMENT AND STARTUPS	EDS	AEC	1	-	2	1	4	2	-	-	-	-	-	50	20	25@	10	25	10	100

Total IKS Hrs for Sem. : 0 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Compare advantages and disadvantages of Entrepreneurship TLO 1.2 Identify entrepreneurial traits through self-analysis TLO 1.3 Compare risk associated with different type of enterprise	**Unit - I Introduction to Entrepreneurship Development** 1.1 Entrepreneurship as a career – charms, advantages, disadvantages , scope- local and global 1.2 Traits of successful entrepreneur: consistency, creativity, initiative, independent decision making, assertiveness, persuasion, persistence, information seeking, handling business communication, commitment to work contract, calculated risk taking, learning from failure 1.3 Types of enterprises and their features : manufacturing, service and trading	Presentations Lecture Using Chalk-Board
2	TLO 2.1 Explain Important factors essential for selection of product/service and selection of process TLO 2.2 Suggest suitable place for setting up the specified enterprise on the basis of given data/circumstances with justification. TLO 2.3 Suggest steps for the selection process of an enterprise for the specified product or service with justification. TLO 2.4 Plan a market study /survey for the specified enterprise	**Unit - II Startup Selection Process** 2.1 Product/Service selection: Process, core competence, product/service life cycle, new product/ service development process, mortality curve, creativity and innovation in product/ service modification / development 2.2 Process selection: Technology life cycle, forms and cost of transformation, factors affecting process selection, location for an industry, material handling. 2.3 Market study procedures: questionnaire design, sampling, market survey, data analysis 2.4 Getting information from concerned stakeholders such as Maharashtra Centre for Entrepreneurship Development[MCED], National Institute for Micro, Small and Medium Enterprises [NI-MSME], Prime Minister Employment Generation Program [PMEGP], Directorate of Industries[DI], Khadi Village Instries Commission[KVIC]	Presentations Lecture Using Chalk-Board

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Explain categorization of MSME on the basis of turnover and investment TLO 3.2 Describe support system provided by central and state government agencies TLO 3.3 State various schemes of government agencies for promotion of entrepreneurship TLO 3.4 Describe help provided by the non-governmental agencies for the specified product/service TLO 3.5 Compute breakeven point, ROI and ROS for the specified business enterprise, stating the assumptions made	**Unit - III Support System for Startup** 3.1 Categorization of MSME, ancillary industries 3.2 Support systems- government agencies: MCED, NI-MSME, PMEGP,DI, KVIC 3.3 Support agencies for entrepreneurship guidance, training, registration, technical consultation, technology transfer and quality control, marketing and finance. 3.4 Breakeven point, return on investment (ROI) and return on sales (ROS).	Presentations Lecture Using Chalk-Board
4	TLO 4.1 Explain key elements for the given business plan with respect to their purpose/size TLO 4.2 Justify USP of the given product/ service from marketing point of view. TLO 4.3 Formulate business policy for the given product/service. TLO 4.4 Choose relevant negotiation techniques for the given product/ service with justification TLO 4.5 Identify risks that you may encounter for the given type of business/enterprise with justification. TLO 4.6 Describe role of the incubation centre and accelerators for the given product/service.	**Unit - IV Managing Enterprise** 4.1 Techno commercial Feasibility study, feasibility report preparation and evaluation criteria 4.2 Ownership, Capital, Budgeting, Matching entrepreneur with the project 4.3 Unique Selling Proposition [U.S.P.]: Identification, developing a marketing plan. 4.4 Preparing strategies of handling business: policy making, negotiation and bargaining techniques 4.5 Risk Management: Planning for calculated risk taking, initiation with low cost projects, integrated futuristic planning, definition of startup cycle, ecosystem , angel investors, venture capitalist 4.6 Incubation centers and accelerators : Role and procedure	Presentations Lecture Using Chalk-Board

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Collect information of successful entrepreneurial traits	1	*Preparation of report on entrepreneurship as a career	2	CO1
LLO 2.1 Identify different traits as an entrepreneur from various field LLO 2.2 Suggest different traits from identified problem	2	Case study on ‘Traits of Entrepreneur’	2	CO1

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 3.1 Explore probable risks for identified enterprise.	3	*Case study on 'Risks associated with enterprise	2	CO1
LLO 4.1 Identify new product for development LLO 4.2 Prepare a newly developed product	4	*Preparation of report on 'Development of new Product'	2	CO1 CO2
LLO 5.1 Identify Process for development of product for new startup	5	Preparation of Report on ' Process selection ' for new startup	2	CO1 CO2 CO3
LLO 6.1 Develop questioner for market survey	6	*Market survey for setting up new Start up	2	CO2 CO3
LLO 7.1 Interpret the use of Technology Life Cycle	7	A Case study on ' Technology life cycle' of any successful entrepreneur.	2	CO3
LLO 8.1 Use information related to support of startups from Government and non-government agencies' LLO 8.2 Prepare report for setting up startup	8	*Preparation of report on 'Information for setting up new startup' from MCED/MSME/KVIC etc	2	CO3 CO4
LLO 9.1 Compute ROI of successful enterprise.	9	Case study on 'Return on Investment (ROI)'of any successful startup	2	CO3
LLO 10.1 Calculate of ROS of any successful enterprise	10	Case study on 'Return on sales (ROS)'of any successful startup	2	CO3
LLO 11.1 Calculate Brake even point of any enterprise	11	Preparation of report on 'Brake even point calculation' of any enterprise.	2	CO3 CO4
LLO 12.1 Prepare feasibility report of given business	12	*Preparation of report on 'feasibility of any Techno-commercial business"	2	CO4
LLO 13.1 Plan a USP of any enterprise.	13	*A case study based on 'Unique selling Proposition (USP) of any successful enterprise	2	CO4
LLO 14.1 Prepare a project report using facilities of Atal Incubation center.	14	*Prepare project report for starting new startup using 'Atal incubation center (AIC)	2	CO1 CO2 CO3 CO4

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Prepare a ' Women entrepreneurship business plan ' Choose relevant government scheme for the product/service
- Prepare a 'Pitch- desk' for your start up
- Prepare a business plan for a. Market research b. Advertisement agency c. Placement Agency d. Repair and Maintenance agency e. Tour and Travel agency
- Prepare a 'Social entrepreneurship business plan, plan for CSR funding.

- Prepare a business plan for identified projects by using entrepreneurial eco system for the same (Schemes, incentives, incubators etc.)

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Computers with internet and printer facility	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Introduction to Entrepreneurship Development	CO1	5	0	0	0	0
2	II	Startup Selection Process	CO2	4	0	0	0	0
3	III	Support System for Startup	CO3	3	0	0	0	0
4	IV	Managing Enterprise	CO4	3	0	0	0	0
Grand Total				**15**	**0**	**0**	**0**	**0**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

Summative Assessment (Assessment of Learning)

- End of Term Examination - Viva-voce

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	2	2	2	-	-	3	2			
CO2	2	2	2	2	-	3	2			
CO3	2	2	2	2	-	3	2			
CO4	2	2	2	2	-	3	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Dr. Nishith Dubey, Aditya Vyas , Annu Soman , Anupam Singh	Un- boxing Entrepreneurship your self help guide to setup a successful business	Indira Publishing House ISBN-2023,978-93-93577-70-2
2	Gujral, Raman	Reading Material of Entrepreneurship Awareness Camp	Entrepreneurship Development Institute of India (EDI), GOI, 2016 Ahmedabad
3	Chitale, A K	Product Design and Manufacturing	PHI Learning, New Delhi, 2014; ISBN: 9788120348738
4	Charantimath, Poornima	Entrepreneurship Development Small Business Entrepreneurship	Pearson Education India, New Delhi; ISBN: 9788131762264
5	Khanka, S.S.	Entrepreneurship and Small Business Management	S.Chand and Sons, New Delhi, ISBN: 978-93-5161-094-6

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	http://www.mced.nic.in/allproduct.aspx	MCED Product and Plan Details
2	http://niesbud.nic.in/Publication.html	The National Institute for Entrepreneurship and Small Business Development Publications
3	http://niesbud.nic.in/docs/1standardized.pdf	Courses : The National Institute for Entrepreneurship and Small Business Development
4	https://www.nabard.org/content1.aspx?id=23andcatid=23andmid=530	Government Schemes
5	https://www.nabard.org/Tenders.aspx?cid=501andid=24	NABARD - Information Centre
6	http://www.startupindia.gov.in/pdffile.php?title=Startup%20India%20Action%20Planandtype=Actionandq=Action%20Plan.pdfandcontent_type=Actionandsubmenupoint=action	Start Up India
7	http://www.ediindia.org/institute.html	About - Entrepreneurship Development Institute of India (EDII)

ENTREPRENEURSHIP DEVELOPMENT AND STARTUPS **Course Code : 314014**

Sr.No	Link / Portal	Description
8	http://www.nstedb.com/training/training.htm	NSTEDB - Training

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

Programme Name/s	**: Architecture Assistantship/ Automobile Engineering./ Architecture/ Interior Design & Decoration/ Interior Design/ Mechanical Engineering/ Mechatronics/ Production Engineering/**
Programme Code	**: AA/ AE/ AT/ IX/ IZ/ ME/ MK/ PG**
Semester	**: Third / Fourth / Fifth**
Course Title	**: FUNDAMENTALS OF PYTHON PROGRAMMING**
Course Code	**: 313007**

I. RATIONALE

Comprehension of programming languages is crucial for diploma engineering graduates, especially as they engage with various software applications in the mechanical engineering domain. Python, being easy to code, potent, and stands out as an ideal language for introducing computing and problem-solving concepts to beginners. This course enables students to write Python programs and utilize various built-in functions/methods of Python modules/libraries to solve specific problems.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

An ability to prepare python programs for solving simple engineering problems.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Use program designing tools and IDE for python.
- CO2 - Employ python building blocks and data types in the programming.
- CO3 - Implement conditional and looping statements in the python programming.
- CO4 - Implement built in functions and modules in the python programming.
- CO5 - Use NumPy for performing operations on list and array.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical							
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
313007	FUNDAMENTALS OF PYTHON PROGRAMMING	FPP	AEC	-	-	2	-	2	1	-	-	-	-	-	25	10	25@	10	-	-	50

Total IKS Hrs for Sem. : 0 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Describe the functions of different components of computers and peripherals. TLO 1.2 List the applications of computers in the domain of Mechanical Engineering. TLO 1.3 Create flow chart of given programming problem. TLO 1.4 Describe the given feature of Python programming language.	**Unit - I Introduction to Python Programming** 1.1 Revision of Computer Components (CPU, I/O devices) 1.2 Applications of computer and programming languages in Mechanical engineering domain. 1.3 Program Designing Tools: Algorithm, Flow Chart. 1.4 Introduction and Features of Python: Open source, Interactive, Interpreted, Object-oriented, Platform independent etc., Installation & working of IDEs.	Presentations Hands-on
2	TLO 2.1 Use different Python building blocks. TLO 2.2 Describe different data types of Python programming. TLO 2.3 Differentiate normal and container data types of Python programming language. TLO 2.4 Write simple Python programs by taking the user's input to solve expressions.	**Unit - II Python building blocks & data types** 2.1 Python building blocks: Identifiers, Indentation, Comments, Variables, Arithmetic and assignment operators and Expressions. 2.2 Data Types: Integers, float, complex, string and their declaration, data type conversion. 2.3 Accepting input from user: I/O functions. 2.4 Container Types: List, tuple, set and their declaration. 2.5 Write simple python program to display "Welcome" message.	Presentations Hands-on

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Use basic relational and logical operators in python programs. TLO 3.2 Employ decision control statements in python programs. TLO 3.3 Employ looping statements in python programs.	**Unit - III Python operators and Control flow** 3.1 Relational and Logical operators. 3.2 Decision making statements: if, if-else, if- elif - else statements. 3.3 Looping statements: while loop, for loop, Nested loops. 3.4 Loop manipulation using continue, pass, break statements.	Demonstration Hands-on
4	TLO 4.1 Use built-in functions in Python programs. TLO 4.2 Use built-in modules in Python programs. TLO 4.3 Develop user-defined functions in Python for the given purpose.	**Unit - IV Python functions and modules** 4.1 Functions: Use of built-in functions, data conversion functions, abs, pow, min, max, round, ceil, floor etc. 4.2 Modules: Use of built-in modules- math cmath, random and statistics. 4.3 User-defined function: Function definition, function calling, function arguments and parameter passing, Return statement, scope of variables.	Demonstration Hands-on
5	TLO 5.1 Manipulate the given list. TLO 5.2 Perform different operations on list. TLO 5.3 Use NumPy arrays for faster operations.	**Unit - V List and arrays in python** 5.1 List: define list (one and multi-dimension), accessing, deleting and updating values in list. 5.2 Basic list operations: slicing, repeating, concatenation and iteration. 5.3 NumPy array: Generate NumPy arrays and construct multidimensional arrays.	Demonstration Hands-on

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Install python IDE. LLO 1.2 Explore the IDE's settings and preferences.	1	Install Python IDE.	2	CO1
LLO 2.1 Draw flow chart for the given problem. LLO 2.2 Write algorithm for the given problem.	2	*Prepare a flow chart and algorithm for simple problem.	2	CO1
LLO 3.1 Use print function to display the message.	3	Write a simple program to display a simple message. (Ex: “Welcome to Python programming”)	2	CO2
LLO 4.1 Write and execute a python program to solve a given expression.	4	Write a simple Python program by taking user’s input to - - find the area of rectangle - find the area or circle.	2	CO2
LLO 5.1 Write and execute a python program.	5	*Write a program to accept value of Celsius and convert it to Fahrenheit.	2	CO2
LLO 6.1 Use the if - else statement in the python program.	6	Write a python program to find whether the given number is even or odd using if - else statement.	2	CO3

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 7.1 Implement the if-elif-else statement in the python program.	7	*Write a python program to check whether a input number is positive, negative or zero using if – elif-else statement.	2	CO3
LLO 8.1 Use appropriate decision-making control statement to solve the given problem.	8	Write a program to accept the three sides of a triangle to check whether the triangle is isosceles, equilateral, right angled triangle.	2	CO3
LLO 9.1 Identify suitable loop and conditional statement for the problem. LLO 9.2 Inscribe the loop and conditional statement in the python program.	9	Write a program that allows the user to input numbers until they choose to stop, and then displays the count of positive, negative, and zero numbers entered (Use while loop).	2	CO3
LLO 10.1 Identify suitable looping statement for multiplication table. LLO 10.2 Implement the for loop for the multiplication table.	10	*Write a python program for printing multiplication table of a given number using for loop. (Ex. 12x1=12 12x2=24 …. 12x10=120)	2	CO3
LLO 11.1 Identify a suitable module for importing a given function. LLO 11.2 Use various mathematical functions available in cmath module.	11	*Write a Python program to demonstrate the use of different mathematical functions (Ex. ceiling, floor etc).	2	CO4
LLO 12.1 Use various functions available in statistics module.	12	*Write a python program to find mean, mode, median and standard deviation using statistics module.	2	CO4
LLO 13.1 Use list data type of Python.	13	Write a python program utilizing a list to display the name of a month based on a given month number.	2	CO5
LLO 14.1 Write programs using Multidimensional list in Python.	14	Write a python program to add or subtract two matrices using multidimensional list.	2	CO5
LLO 15.1 Write programs using Multidimensional list in Python.	15	*Write a python program to multiply two matrices using multidimensional list.	2	CO5
LLO 16.1 Perform metrics operation using NumPy Module	16	*Write a python program to multiply two matrices using NumPy.	2	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Not Applicable

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Computer System with all necessary peripherals and internet connectivity.	All
2	Any relevant python IDE like IDLE/PyCharm/VSCode/Jupiter Notebook/Online Python Compiler.	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table) : NOT APPLICABLE

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Term Work

Summative Assessment (Assessment of Learning)

- Practical

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	2	2	2	3	-	-	2			
CO2	2	2	2	3	-	-	2			
CO3	2	2	2	3	-	-	2			

CO4	2	2	2	3	-	-	2			
CO5	2	2	2	3	-	-	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Kenneth A. Lambert	Fundamentals of Python : First Programs , 2E	Cengage Learning India Private Limited, ISBN: 9789353502898
2	Yashavant Kanetkar, Aditya Kanetkar	Let Us Python - 6th Edition	BPB Publications, ISBN: 9789355515414

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.w3schools.com/python/	Python Programming
2	https://www.tutorialspoint.com/python/index.htm	Python Programming
3	https://www.python.org/	Python Programming
4	https://spoken-tutorial.org/tutorial-search/?search_foss=Pyt	Python Programming

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

FURNITURE DESIGN **Course Code : 325302**

Programme Name/s : **Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/**

Programme Code : **AA/ AT/ IX/ IZ**

Semester : **Fifth**

Course Title : **FURNITURE DESIGN**

Course Code : **325302**

I. RATIONALE

Furniture design is a specialized subject within the field of architecture and interior design that focuses on the conceptualization, development, and creation of furniture pieces. This course aims to equip students with comprehensive knowledge and practical skills essential for designing furniture that is functional, aesthetically pleasing, and responsive to contemporary design trends and user needs.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

Design compelling, user-centered furniture solutions integrating sustainable practices and contemporary design trends.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Explain evolution and cultural influence of ancient furniture styles on modern design trends.
- CO2 - Apply anthropometric principles for ergonomic comfort within the spaces.
- CO3 - Apply principles of design to create innovative and functional furniture pieces.
- CO4 - Prepare detailed working drawings for given furniture pieces.
- CO5 - Explain joints and joinery techniques to construct furniture pieces.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325302	FURNITURE DESIGN	ELC	DSE	2	-	4	-	6	3	03	30	70	100	40	25	10	25@	10	-	-	150

FURNITURE DESIGN **Course Code : 325302**

Total IKS Hrs for Sem. : 0 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Explain scope and need of furniture design. TLO 1.2 Identify ancient Greek furniture from a given furniture data. TLO 1.3 Draw neat sketches of Egyptian furniture. TLO 1.4 Discuss the influence of Egyptian furniture on modern furniture. TLO 1.5 Draw different types of Gothic furniture indicating its characteristics. TLO 1.6 Explain industrial revolution of furniture.	**Unit - I Introduction - History of Furniture Design** 1.1 Introduction to Furniture Design : Scope and Need. 1.2 Ancient Greek Furniture Design: Types of furniture , materials , shapes and forms ,color and texture. 1.3 Egyptian Furniture Design : Egyptian chairs and seating(chairs , tables, storage beds etc.). 1.4 Egyptian Furniture Design :Influence on Modern furniture. 1.5 Gothic Furniture Design : Gothic chests and armoires (chairs ,beds and tables) and characteristics. 1.6 Industrial revolution of Furniture.	Case Study Video Demonstrations Lecture Using Chalk-Board Site/Industry Visit Presentations
2	TLO 2.1 Identify types of furniture from a given furniture data. TLO 2.2 Explain physical and spatial characteristics of furniture design. TLO 2.3 Draw different human activities with appropriate dimensions.	**Unit - II Types of Furniture and Human Factor** 2.1 Types of Furniture: Healthcare furniture; Hospitality furniture; Institutional furniture; Multifunctional furniture; Office furniture; Recreational furniture; Religious furniture; Residential furniture; Retail furniture. 2.2 Characteristics of furniture design: Physical and spatial characteristics of furniture. 2.3 Anthropometry in Furniture Design : Function and Social Use - Human body supports (Sitting, resting, sleeping, eating, cooking, reading, typing, and writing etc.)	Lecture Using Chalk-Board Demonstration Site/Industry Visit Hands-on

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Discuss the importance of functionality in furniture design. TLO 3.2 Explain scale and proportion in relation to space. TLO 3.3 Explain structural and visual balance with neat sketches. TLO 3.4 Select different types of materials and finishes for various furniture.	**Unit - III Principles of Furniture Design.** 3.1 Functionality : Usability of furniture meeting the needs of users. (size, shape, storage capacity, and ease of use.) 3.2 Proportion and Scale: Definition and importance , human scale in relation to space. 3.3 Balance ,Unity ,Contrast and variety : Structural and Visual, Symmetry and Asymmetry. 3.4 Materials and furnishes : Wood, Glass , Metal , Plastic , upholstery - include various finishes.	Demonstration Lecture Using Chalk-Board Presentations Site/Industry Visit
4	TLO 4.1 Explain Concept and Design brief with appropriate examples. TLO 4.2 Provide detailed specification and material treatments for a given furniture. TLO 4.3 Describe scope and importance of technical drawings in furniture design. TLO 4.4 Prepare an estimate for any furniture object using detailed estimate method.	**Unit - IV Furniture Design and Working Drawing** 4.1 Concept Development and Design Brief : Brainstorming ; Sketching and creating initial concept and requirements. 4.2 Specifications and Detail of design : Detailed specification , Material , Finalizing dimensions and Proportions. 4.3 Technical drawings : Plan , Elevation , Section and 3D view(Detailed working drawings). 4.4 Estimation and costing : Detailed Estimate method, labor charges , contingencies and designers fees.	Lecture Using Chalk-Board Hands-on Demonstration
5	TLO 5.1 Define various technical terms of joinery in furniture design. TLO 5.2 Explain different types of joints with neat sketches. TLO 5.3 State application process of different joints used in furniture design.	**Unit - V Sustainable Practices -Construction Techniques** 5.1 Joinery : Technical terms - Sawing , Chamfering , Bevel, Mitring , Housing and Rebating. 5.2 Types of Joints : Mortise and Tenon Joint, Dovetail Joint, Dado Joint, Rabbet Joint, Bridle Joint ,Butt Joint, Tongue and Groove Joint, Biscuit Joint, Dowel Joint etc. 5.3 Assembly and Application : Assembly technics , Applications and Innovations.	Lecture Using Chalk-Board Hands-on Demonstration

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Prepare a presentation report on Ancient furniture styles.	1	*Ancient Furniture Design Styles.	4	CO1
LLO 2.1 Prepare Literature case study report on Industrial revolution and Furniture design.	2	Literature Case study : Industrial Revolution and Furniture Design.	4	CO1
LLO 3.1 Compare Egyptian and Greek chairs through sketches.	3	*Comparison of Egyptian and Greek chairs.	4	CO1

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 4.1 Suggest types of furniture for given spaces. LLO 4.2 Compose photo collage of different types of furniture.	4	Composition of various types of Furniture.	4	CO2
LLO 5.1 Provide standard dimensions for different working postures from given prints. LLO 5.2 Draw standing and sitting postures and give dimensions to it.	5	*Anthropometry and Ergonomics in Furniture design.	6	CO2
LLO 6.1 List at least three strengths and three weaknesses of the given Furniture design regarding its functionality. LLO 6.2 Redesign a given furniture drawing for enhancing its functionality.	6	*Functionality: Principle of Furniture Design	6	CO3
LLO 7.1 Compose a photo collage showing various furniture designs emphasizing proportion and scale considerations.	7	*Proportion and scale : Principle of Furniture Design.	4	CO3
LLO 8.1 Arrange multiple furniture pieces within a given room layout, emphasizing balance between different items.	8	Balance : Principle of Furniture design.	4	CO3
LLO 9.1 Suggest detailed specifications for a given furniture Drawing.	9	*Drawings and Specifications in Furniture Design.	4	CO4
LLO 10.1 Draw working drawings including plan, sectional elevation and 3D view for a given furniture piece.	10	*Technical and Working Drawings.	8	CO4
LLO 11.1 Prepare an estimate for given furniture piece.	11	Estimate in Furniture design.	4	CO4
LLO 12.1 Compose a photo collage of various furniture indicating different joinery.	12	Types of Joints in Furniture Design.	4	CO5
LLO 13.1 Draw various joints used in furniture design.	13	*Joints and Joinery in Furniture Design.	8	CO5
LLO 14.1 Prepare a report on application techniques used in Furniture design.	14	Assembly and applications techniques in Furniture design.	4	CO5
LLO 15.1 Draw and make a report on innovative joinery techniques using modern tools and technologies, ensuring both aesthetic appeal and structural integrity.	15	Draw Innovative Joinery Techniques	4	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Assignment

- Visit a local furniture shop/mall/factory and prepare a visit report .

- Prepare a literature case study report on ancient furniture.
- Prepare visual board using small cutouts of furniture.

Micro project

- Prepare small furniture objects from locally available material or Waste materials.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Software : AutoCAD	2,4,5
2	Computer : Multi core 64-bit processor, 8 GB Boot Drive, 8 GB RAM minimum 200 GB Hard Disk. OR Latest specification at time of procurement.	All
3	Projector : Type of display Poly-silicon TFT active matrix Resolution Bright link 480i: 1024 ×768 pixels (XGA) Bright link 475Wi / 485Wi:1280 × 800 pixels (WXGA) Lens F= 1.80, Focal length: 3.71 mm Color reproduction: Full color, 16.77 million colors, Focus adjustment-Manual, Zoom adjustment-Digital, Zoom ratio-1:1.35 OR Latest specification at time of procurement	All
4	Projector Screen: 116" Diagonal viewing screen, Manual pull down Screen for both ceiling and wall usage OR Latest specification at time of procurement.	All
5	B/W Printer: Print speed black (normal, A4) Up to 14 ppm print speed. Duty cycle (monthly,A4) Up to 5000 pages recommended, monthly page volume 250 to 2000 OR Latest specification at time of procurement.	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Introduction - History of Furniture Design	CO1	8	8	4	4	16
2	II	Types of Furniture and Human Factor	CO2	6	4	4	4	12
3	III	Principles of Furniture Design.	CO3	6	6	4	4	14
4	IV	Furniture Design and Working Drawing	CO4	6	4	4	8	16

FURNITURE DESIGN **Course Code : 325302**

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
5	V	Sustainable Practices -Construction Techniques	CO5	4	4	4	4	12
Grand Total				**30**	**26**	**20**	**24**	**70**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Studio Performance and Assignments

Summative Assessment (Assessment of Learning)

- Pen and paper illustration ,Practical Examination to be conducted by faculty.

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	0	2	0	2	0	2			
CO2	3	2	3	2	2	0	2			
CO3	3	2	2	1	2	0	2			
CO4	3	2	2	2	2	0	2			
CO5	3	1	1	0	1	0	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Sembach – Leuthauser - Gossel	20th Century Furniture Design	Taschen - 3-8228-0276-X
2	Miller, Judith	Furniture World styles from classical to contemporary	DK - 1 405306548
3	Design museum fifty	Fifty chairs that changed the world	Conran - 9781840915402
4	Fiell Charlotte and Peter	Design of the 20th century	Taschen - 9783836541060

Sr.No	Author	Title	Publisher with ISBN Number
5	Axel Ritter	Smart Materials in Architecture, Interior Architecture and Design: In Architecture, erior Architecture and Design	Birkhauser - 978-3764373276
6	Hodges, Felice and Dent Coad , Emma and Stone, Anne and Sparke, Penny, and Aldersey, Williams Hugh	The New Design Sourcebook	Little, Brown and Co - 0 356 20966 0
7	Jim Postell	Furniture Design Second Edition	John Wiley & Sons-978-1-118-09078-7
8	Coley, Scott	Elements of Furniture Design: Principles and History of Furniture Design with Analysis of Furniture Made by Thomas Day	Schiffer Publishing Ltd - 9780764367465

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://ffsc.in/assets/pdf/PH_FFSQ0106_Assistant-Furniture-Designer.pdf	Furniture and Furniture sector in India.
2	https://www.youtube.com/results?search_query=furniture+design+tutorials	Furniture design tutorials
3	https://www.finewoodworking.com/	Joints and Joinery , construction technics for typical furniture.
4	https://www.popularwoodworking.com/furniture-projects/	Popular Woodworking Magazine- woodworking projects from simple (but attractive) that use basic joinery, to complex furniture plans using advanced woodworking techniques.
5	https://www.woodmagazine.com/project-plans/furniture	woodworking plans for tables, cabinets, desks, bookcases, entertainment centers, and bedroom furniture.
6	https://woodworkersinstitute.com/category/furniture-cabinetmaking/	Furniture & Cabinetmaking is a bi-monthly magazine, focusing exclusively on fine furniture. It reports on the latest trends and styles from around the world and shares inspirational and thoughtful content that will boost woodworking.
7	https://www.architecturaldigest.com/topic/furniture	Different furniture design solutions

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

Programme Name/s	**: Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/**
Programme Code	**: AA/ AT/ IX/ IZ**
Semester	**: Fifth**
Course Title	**: INTERIOR DESIGN**
Course Code	**: 325002**

I. RATIONALE

Interior Design forms an integral part of an space formed and used during Architectural Design. The course enables a learner to understand various concepts, integral design design decisions of interior space usage, aesthetics desired, required services accommodation and attain basic skills required to design a given Interior space. The required graphical and presentation skills shall be developed in the learner to express design (AT/AA) Interior design students can focus on Modular applications in commercial areas, with latest technological needs to be accommodated.(IX/IZ)

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

A learner shall be able to design the interior for residential, small commercial space or Mixed use.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Select suitable and sustainable materials for a given Interior design project
- CO2 - Prepare a project brief for the context, function and specific user group
- CO3 - Prepare drawing Portfolio for Interior design of a given project.
- CO4 - Prepare required service drawings for a given Interior design project.
- CO5 - Prepare Software based presentation drawing portfolio for a given Interior design project.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical							
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325002	INTERIOR DESIGN	IDE	DSC	1	-	6	1	8	4	-	-	-	-	-	50	20	50#	20	25	10	125

Total IKS Hrs for Sem. : 1 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Explain the importance of Interior design in architectural planning aspects. TLO 1.2 Identify the typology and scale of a given residential /commercial projects TLO 1.3 Discuss the importance of Case studies, in Interior design projects. TLO 1.4 Select suitable and sustainable material for a given interior design project. TLO 1.5 Use suitable anthropometric data for a given Interior design project..	**Unit - I Introduction to Interior Design** 1.1 Importance of Interior design, need and scope 1.2 Typological classification of Interior projects - residential and commercial 1.3 Case studies on Interior projects-residential and commercial 1.4 Materials for interior structures and finishes, sustainable aspects and desired aesthetical uses. 1.5 Human Scale and proportion for user comfort, Relevance to functional usage.	Video Demonstrations Demonstration Case Study Presentations Lecture Using Chalk-Board
2	TLO 2.1 Explain the importance of context and its various aspects for a given Interior Design project. TLO 2.2 Identify suitable style and Themes based on the context and user requirements. TLO 2.3 Select suitable materials for a given Style and Theme TLO 2.4 Prepare area allocation list based on the functional space requirements.	**Unit - II Context Study and Project brief preparation** 2.1 Introduction of Interior design project, Importance of context for the project site. 2.2 Style and Themes as per user requirements. 2.3 Selection of suitable material for the selected theme. 2.4 Functional space requirements, Area allocation list	Video Demonstrations Demonstration Case Study Presentations

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Prepare concept drawing for a given interior design project TLO 3.2 Draw sketches and drawings indicating zoning and bubble diagram for a given interior design project. TLO 3.3 Prepare basic plans, sections, elevations indicating various units such as furniture, necessary elements as partitions etc. for a given interior design project. TLO 3.4 Render prepared drawings for presentation using various techniques and mediums.	**Unit - III Sketching, Drafting and Rendering Techniques** 3.1 Preparation of concept drawing for Interior design 3.2 Preparation of zoning / bubble diagram including various options for it. 3.3 Preparation of drawings for the proposal of interior design project. 3.4 Rendering prepared drawings for presentation.	Demonstration Presentations Hands-on
4	TLO 4.1 Analyze the space envelope for structure, circulation and function to be accommodated. TLO 4.2 Prepare layout incorporating the changes pertaining to civil engineering. TLO 4.3 Prepare service layout for plumbing, electrical, HVAC, networking, security systems, landscape. .(IX/IZ) Prepare service layout for plumbing, electrical, landscape (AT/AA)	**Unit - IV Services** 4.1 Analysis of given space envelope 4.2 Identification of necessary changes pertaining to civil engineering, Preparation of layout incorporating the changes in it. 4.3 Preparation of Service layouts for various required services such as plumbing, electrical, HVAC, networking, security systems, landscape	Video Demonstrations Case Study Presentations
5	TLO 5.1 Select suitable materials and hardware for the various units of a interior design project. TLO 5.2 Identify suitable construction methods for the various units of interior design project. TLO 5.3 Prepare drawing for the detail with specifications, material and method to be adopted.	**Unit - V Detailed scaled drawings of any two units** 5.1 Selection of suitable materials and hardware for the various units such as furniture, partitions, wall treatments ,false ceiling, door window treatments etc. for interior design project. 5.2 Identification of construction methods for the various units of interior design such as furniture, partitions, wall treatments ,false ceiling, door window treatments etc. 5.3 Preparation of drawings incorporating various units of interior design project.	Demonstration Presentations Collaborative learning
6	TLO 6.1 Explain a design proposal of a given interior design project using various ways of rendering. TLO 6.2 Identify the required software TLO 6.3 Prepare drawings with rendering for the client approval.	**Unit - VI 2D and 3D Presentation Drawings** 6.1 Various ways to explain the design proposal. 6.2 Identification of required software for rendering and presentation. 6.3 Preparation of rendered drawings for the client approval.	Video Demonstrations Collaborative learning Cooperative Learning

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 *Prepare report/presentation on Case study visit LLO 1.2 *Prepare report/presentation on Market survey	1	Preparation of a report/presentation on Case study visit and Market Survey	8	CO1
LLO 2.1 *Draw free hand sketches, mind maps for context study and initial concept LLO 2.2 Prepare Mood board, material palette.	2	Preparation of free hand sketches, mind maps for context study and initial concept Preparation of Mood board, material palette.	8	CO2
LLO 3.1 *Prepare sketches, drawing for deriving concept, zoning / bubble diagram LLO 3.2 *Prepare Floor plans showing internal layouts with suitable scale and render them LLO 3.3 *Prepare elevations, Sections showing interior design proposed and render them. LLO 3.4 Prepare internal views/sketches explaining the proposed Interior design and render them	3	Preparation of concept drawing, Floor plans with interior details, sections, elevations and views/sketches.	16	CO3
LLO 4.1 Prepare layout showing details of flooring LLO 4.2 *Prepare layout and sections showing proposed False ceiling LLO 4.3 *Prepare electrical layout LLO 4.4 Prepare drawings showing plumbing details	4	Preparation of Civil changes layout, Flooring layout, False ceiling layout, Lighting layout, Electrical layout, plumbing layout, and necessary sections.	12	CO4
LLO 5.1 Prepare drawings showing details of any two interior units.	5	Preparation of detail drawing for explaining the construction of interior units	8	CO4
LLO 6.1 Prepare presentation drawings using software for client approval.	6	Preparation of software based presentation drawings for client approval.	8	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Develop a technically sound and sustainable interior design theme with the help of market study and online information. Mind maps, flow diagrams, Software learning and preparing sketches/drawings. Market survey and

specifications.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Basic Drafting Tools such as Tee Square, Set Squares, Triangular Scale, Foot Ruler, Drawing Board and Measuring Tape	All
2	Soft Pencils, Pencil Colors, Artists Watercolors	All
3	Software's for making presentation, Image processing video editing, CAD Drawing Software and apps.	All
4	LCD Projector and white screen for projection	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Introduction to Interior Design	CO1	4	0	0	0	0
2	II	Context Study and Project brief preparation	CO2	4	0	0	0	0
3	III	Sketching, Drafting and Rendering Techniques	CO3	8	0	0	0	0
4	IV	Services	CO4	6	0	0	0	0
5	V	Detailed scaled drawings of any two units	CO4	4	0	0	0	0
6	VI	2D and 3D Presentation Drawings	CO5	4	0	0	0	0
Grand Total				**30**	**0**	**0**	**0**	**0**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- The assignments are associated with the continuous assessment of the assignments of the learner for the course work.

Summative Assessment (Assessment of Learning)

- Micro Projects assessments which is at the term end is considered as a summative assessment

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	1	1	1	2	-	2			
CO2	3	2	2	1	2	-	2			
CO3	3	-	2	1	2	-	2			
CO4	3	2	2	2	2	1	2			
CO5	3	2	2	2	1	-	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Ahmed A. Kasu	Interior Design	978-8185825044
2	Chris Grimley and Mimi Love	The Interior Design Reference & Specification Book: Everything Interior Designers Need to Know Every Day	978-1631593802
3	Joseph DeChiara, Julius Panero, and Martin Zelnik	Time-Saver Standards for Interior Design and Space Planning	978-0071346160
4	Simon Dodsworth	The Fundamentals of Interior Design	978-2940411781
5	Francis D.K. Ching	Architectural Graphics	978-1119035664
6	Francis D.K. Ching and Steven P. Juroszek	Design Drawing	978-0470533697
7	Corky Binggeli	Materials for Interior Environments	978-1118306352
8	Frida Ramstedt	The Interior Design Handbook	978-0593139318

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://designacademy.io/	courses in interior design, focusing on practical skills and creative processes.
2	https://www.archdaily.com/	ArchDaily is a leading architecture and design website that features articles, projects, and news on interior design.
3	https://design-milk.com/	Design Milk is an online magazine dedicated to modern design, offering a wealth of information on interior design, architecture, furniture, and art.

INTERIOR DESIGN **Course Code : 325002**

Sr.No	Link / Portal	Description
4	https://www.apartmenttherapy.com/	It provides practical tips and ideas for home improvement and interior design. It features house tours, DIY projects, and expert advice on decorating.
5	https://www.reddit.com/r/interiordesign/?rdt=35782	a community where design enthusiasts and professionals share ideas, ask for advice, and discuss trends and projects.

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

Programme Name/s	**: Architecture Assistantship/ Automobile Engineering./ Artificial Intelligence/ Agricultural Engineering/ Artificial Intelligence and Machine Learning/ Automation and Robotics/ Architecture/ Cloud Computing and Big Data/ Civil Engineering/ Chemical Engineering/ Computer Technology/ Computer Engineering/ Civil & Rural Engineering/ Construction Technology/ Computer Science & Engineering/ Fashion & Clothing Technology/ Digital Electronics/ Data Sciences/ Electrical Engineering/ Electronics & Tele-communication Engg./ Electrical and Electronics Engineering/ Electrical Power System/ Electronics & Communication Engg./ Electronics Engineering/ Food Technology/ Computer Hardware & Maintenance/ Instrumentation & Control/ Industrial Electronics/ Information Technology/ Computer Science & Information Technology/ Instrumentation/ Interior Design & Decoration/ Interior Design/ Civil & Environmental Engineering/ Mechanical Engineering/ Mechatronics/ Medical Laboratory Technology/ Medical Electronics/ Production Engineering/ Printing Technology/ Polymer Technology/ Surface Coating Technology/ Computer Science/ Textile Technology/ Electronics & Computer Engg.**
Programme Code	**: AA/ AE/ AI/ AL/ AN/ AO/ AT/ BD/ CE/ CH/ CM/ CO/ CR/ CS/ CW/ DC/ DE/ DS/ EE/ EJ/ EK/ EP/ ET/ EX/ FC/ HA/ IC/ IE/ IF/ IH/ IS/ IX/ IZ/ LE/ ME/ MK/ ML/ MU/ PG/ PN/ PO/ SC/ SE/ TC/ TE**
Semester	**: Fifth / Sixth**
Course Title	**: MANAGEMENT**
Course Code	**: 315301**

I. RATIONALE

Effective management is the cornerstone of success for both organizations and individuals. It empowers diploma engineers/ professionals to accomplish their tasks with finesse and efficiency through strategic planning and thoughtful execution, projects can optimize finances, enhance safety measures, facilitate sound decision-making, foster team collaboration and cultivate a harmonious work environment. The diploma engineers require leadership and management skills with technical knowledge of the core field to carry out various tasks smoothly. This course aims to instill fundamental management techniques, empowering diploma engineers/ professionals to enhance their effectiveness in the workplace.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

Apply the relevant managerial skills for achieving optimal results at workplace.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Use relevant management skills to handle work situation
- CO2 - Apply appropriate techniques of product, operations and project management
- CO3 - Use comprehensive tools of recent management practices
- CO4 - Plan suitable marketing strategy for a product / service

- CO5 - Utilize supply chain and human resource management techniques for effective management

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
315301	MANAGEMENT	MAN	VEC	3	-	-	1	4	2	1.5	30	70*#	100	40	-	-	-	-	25	10	125

Total IKS Hrs for Sem. : 1 Hrs

Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination

Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.

MANAGEMENT **Course Code : 315301**

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Justify the importance of management thoughts in Indian knowledge system. TLO 1.2 Describe the importance of management in day to day life. TLO 1.3 Explain Henry Fayol's principles of management. TLO 1.4 Describe the role of each level of management in its management hierarchy. TLO 1.5 Practice the self management skills for a given situation TLO 1.6 Apply the required managerial skills for a given situation	**Unit - I Introduction to Management** 1.1 Evolution of management thoughts from ancient/medieval to modern times in India (IKS) 1.2 Management: meaning, importance, characteristics, functions & challenges. 1.3 Introduction to scientific management- Taylor's & Fayol's principles of management 1.4 Levels & functions of management at supervisory level. 1.5 Self management skills: Self awareness, self discipline, self motivation, goal setting, time management, decision making, stress management, work life balance and multitasking 1.6 Overview of Managerial Skills: negotiation skills, team management, conflict resolution, feedback, leadership	Presentations Case Study Interactive session Quiz competition Mixed Picture Puzzle
2	TLO 2.1 Identify the appropriate creativity technique for new product development TLO 2.2 Describe the new product development process for a product / service TLO 2.3 Comprehend the importance of various strategic steps Product Management TLO 2.4 Elaborate Agile product management TLO 2.5 Explain the significance of the Project Management TLO 2.6 Describe the various tools of project management	**Unit - II Product, Operations and Project Management** 2.1 Creativity and innovation management: creativity techniques - brainstorming, checklist, reverse brainstorming, morphological analysis, six thinking hats. 2.2 New product development, change management 2.3 Product Management -meaning, strategic steps for sustainable design of a product 2.4 Agile product management- concept, benefits, principles and manifesto 2.5 Project Management: importance, areas within project management,4Ps and phases 2.6 Tools of Project Management: PERT and CPM, GANTT & Chart Overview of Estimate and Budget	Presentations Case Study Video Demonstrations Presentations Role Play

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Understand the importance of quality management tools TLO 3.2 Explain the importance of various techniques for optimization and waste minimization TLO 3.3 State the importance of ISO quality standards TLO 3.4 Describe ERP TLO 3.5 State the importance of ISO TLO 3.6 Recognize the importance of customer satisfaction as a competitive advantage	**Unit - III Management Practices** 3.1 Quality circle, kaizen, Six Sigma, TQM 3.2 5S, Kanban card system, TPM, Lean Manufacturing: Meaning, Steps and Importance 3.3 Quality Standards and ISO: Meaning, ISO 9001:2016, ISO 14000, OSHA 2020 3.4 The overview of ERP along with example 3.5 Service quality and customer/client satisfaction, servicescape	Presentation Case study Interactive session Quiz Video Demonstration Lecture Using Chalk-Board
4	TLO 4.1 Explain the importance of marketing techniques TLO 4.2 Explain the importance of needs, wants and desires in marketing TLO 4.3 Interpret the traditional and digital marketing techniques TLO 4.4 Plan different aspects of an event management	**Unit - IV Marketing Management** 4.1 Marketing management: meaning, significance, Seven P's of Marketing 4.2 Needs, wants and demands in marketing. Customer relationship management 4.3 Types of marketing: traditional and digital marketing 4.4 Event management: types, different aspects of event management, crisis management	Case Study Interactive session based video Role Play Flipped Classroom Presentations
5	TLO 5.1 State the importance of supply chain and logistics management TLO 5.2 Explain the components of supply chain and logistics Management TLO 5.3 Describe the role of information technology in supply chain & logistics management TLO 5.4 State the significance of Human Resource Management TLO 5.5 Analyze the various methods of recruitment, selection and training for an organization TLO 5.6 List the qualities of a successful supervisor	**Unit - V Supply Chain & Human Resource Management** 5.1 The overview of Supply Chain and logistics Management 5.2 Components of Supply Chain and logistics Management 5.3 Role of information technology in supply chain & logistics management 5.4 Overview of Human Resource Management-Meaning,significance,scope and principles 5.5 Recruitment, selection and training of human resources. Chalk Circle 5.6 Qualities of a successful supervisor /team leader and types of leadership	Presentations Video Demonstrations Case Study Collaborative learning Video Demonstrations Chalk-Board

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES : NOT APPLICABLE.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Assignment / Article

- Make a one page note based on a book of management you read.
- Write a short article on inventory management exploring online learning resources.
- Prepare a report on ISO standards applicable to your field. a. IATF 16949-2016 / SLA-TS 16949-2016, - Automotive Industry b. ISO 22000 — Food safety management c. ISO 50001 — Energy management d. ISO/IEC 27001 - Cyber Security e. ISO/DIS 4931-1 - Buildings and civil engineering works
- Prepare a 4 quadrant matrix of time management for managing the tasks.
- Prepare a report on any one software used for Supply Chain and Logistics Management.
- Prepare a GANTT Chart for project management related to your field.

Note Taking

- Watch a Tedx Talk Video on managerial skills and take notes in the form of keywords.

Case Study

- Prepare a case study and discuss the same on following topics a.Self Management Skills b.Six Thinking Hats c.Kaizen d.Quality Circle e.Safety Measures in different organizations related to your field
- Study the recruitment and selection process of any organization related to your field.
- Prepare a case study on management lessons based on life of Chhatrapati Shivaji Maharaj
- Conduct outbound training on managerial skills. Make a video and upload on social media.

Quizes

- Participate in online quizzes related to areas of management .

Assignment

- Workshops to be conducted for students on following topics a. creativity techniques b. time management c. stress management d. negotiation and conflict e. goal setting f. meditation new product development

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED : NOT APPLICABLE

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Introduction to Management	CO1	13	8	6	4	18
2	II	Product, Operations and Project Management	CO2	8	2	4	6	12
3	III	Management Practices	CO3	8	4	4	6	14
4	IV	Marketing Management	CO4	8	2	4	6	12
5	V	Supply Chain & Human Resource Management	CO5	8	4	4	6	14
Grand Total				**45**	**20**	**22**	**28**	**70**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- MCQ Based Class Test, Self Learning Activities / Assignment

Summative Assessment (Assessment of Learning)

- Summative Assessment (Assessment of Learning) MCQ based

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	1	1	1	-	-	2	3			
CO2	1	3	3	-	1	3	3			
CO3	1	3	1	-	1	1	3			
CO4	1	2	2	-	1	2	3			
CO5	1	1	2	-	1	2	3			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	A. K. Gupta	Engineering Management	S. Chand, ISBN: 81-219-2812-5, 2007, 2nd Edition
2	O. P. Khanna	Industrial Engineering &management	Dhanpat Rai Publication, ISBN: 978-8189928353, 2018
3	Harold Koontz and Heinz Weinrich	Essentials of Management	Tata McGraw Hill Education ISBN: 9789353168148, 2020, 12th edition
4	E. H. McGrath	Basic Managerial Skills for All	PHI ISBN: 978-8120343146, 2011, 9th Edition
5	Andrew DuBrin	Management Concepts and Cases	Cengage Learning, ISBN: 978-8131510537, 2009, 9th edition
6	K. Dennis Chambers	How Toyota Changed the World	Jaico Books ISBN: 978-81-8495-052-6, 2009
7	Jason D. O'Grandy	How Apple changed the Wolrd	Jaico Publishing House ISBN: 978-81-8495-052-0, 2009
8	Subhash Sharma	Indian Management	New Age International Private Limited ; ISBN-978-9389802412, 2020, 1st edition
9	Chitale, Dubey	Organizational Behaviour Text and Cases	PHI LEARNING PVT. LTD., ISBN: 978-9389347067, 2019, 2nd Edition

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.debonogroup.com/services/core-programs/six-thinking-hats/	Six Thinking Hats
2	https://hbr.org/1981/09/managing-human-resources	HR Management
3	https://theproductmanager.com/topics/agile-product-management/	Agile Product Management
4	https://www.cdlogistics.ca/freight-news/the-5-components-of-supply-chain-management	Supply Chain Management
5	https://www.infosectrain.com/blog/understanding-the-concepts-of-gantt-chart-and-critical-path-methodology-cpm	PERT, CPM, GANTT Chart
6	https://www.simplilearn.com/best-management-tools-article	Management Tools
7	https://www.psychometrica.in/free-online-psychometric-tests.html	Psychometric Tests
8	https://www.investopedia.com/terms/e/erp.asp	ERP
9	https://asq.org/quality-resources/quality-management-system	QMS
10	https://testlify.com/test-library/creative-thinking/	Psychometric Tests
11	https://www.mindtools.com/	Management Skills
12	https://www.investopedia.com/terms/d/digital-marketing.asp	Digital Marketing

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

PROFESSIONAL PRACTICE & BUILDING BYELAWS **Course Code : 325301**

Programme Name/s : Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/

Programme Code : AA/ AT/ IX/ IZ

Semester : Fifth

Course Title : PROFESSIONAL PRACTICE & BUILDING BYELAWS

Course Code : 325301

I. RATIONALE

The architectural profession in India is governed by the Architect's Act of 1972 and the norms set by the Council of Architecture (COA), New Delhi. This legislation outlines the duties and liabilities of architects and their related employees, ensuring professional standards and ethical practices. This course provides students with essential knowledge about general office procedures followed in an architect's office including duties and liabilities within the profession. The students will acquainted with the tendering process, documentation, modes of execution of work, payment procedures, various contract clauses and building byelaws. This course will help the students to apply the knowledge gained in the field of architecture.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

The learner will be able to prepare contract document for a given architectural project.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Apply codes of conduct applicable in Architectural Practice.
- CO2 - Obtain local authority approvals for a given architectural project.
- CO3 - Prepare tender documents for a given architectural project.
- CO4 - Explain the arbitration process applicable in Architectural projects.
- CO5 - Apply National, State, Local development control regulations and building byelaws for a given architectural project.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325301	PROFESSIONAL PRACTICE & BUILDING BYELAWS	PP	DSC	4	1	-	1	6	3	03	30	70	100	40	-	-	-	-	25	10	125

Total IKS Hrs for Sem. : 2 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Define Architects act 1972 and its objectives. TLO 1.2 Explain the duties, liabilities & relationship of employer, Architect & contractor.	**Unit - I Architects Act,1972** 1.1 Architects act 1972 and its objectives. 1.2 Professional code of conduct. 1.3 The duties, liabilities & relationship of employer, Architect & contractor.	Presentations Site/Industry Visit
2	TLO 2.1 Identify the salient features of an Architect's office. TLO 2.2 Explain various legal aspects involved in getting local authority approvals at various stages of the project.	**Unit - II Architect's Office Administration** 2.1 Structure of Architects Office & its management & documentation. 2.2 Approvals from Local Authority at various stages of the project – prior to construction and after completion.	Presentations Case Study Flipped Classroom
3	TLO 3.1 Explain various terminologies associated with tendering process. TLO 3.2 Explain various types of tenders applicable in architectural projects. TLO 3.3 Prepare a tender notice for a given architectural project. TLO 3.4 Prepare work order for a given architectural project.	**Unit - III Tender** 3.1 Definition of tentder, invitation of tender, necessity of inviting tender, earnest money, security deposit, retention amount, mobilization fund. 3.2 Classification of tenders, Modes of execution of works, piece work, daily labour. 3.3 Essential characteristics of Tender Notice, Special notice. 3.4 Mode of submission of tenders. 3.5 Opening of Tender, acceptance & rejection of tender, work order letter etc.	Lecture Using Chalk-Board Presentations Flipped Classroom

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
4	TLO 4.1 Explain requirements of a valid contract. TLO 4.2 Explain various types of contracts. TLO 4.3 Discuss contract clauses applicable in architectural projects. TLO 4.4 Explain arbitration process applicable in architectural projects. TLO 4.5 Describe various types of certificates related to architectural projects.	**Unit - IV Contract** 4.1 Definition of the term contract, objects & essential requirements of valid contract. 4.2 Contract documents, types of contract. 4.3 Conditions of contract- Concept, study of some important conditions of contract, retention money, time limit & its importance, compensation for delay, extension of time limit, defect liability period, liquidated damages, extra items etc. 4.4 Arbitration-concept, qualification of Arbitrator, powers & duties of Arbitrator, Arbitral Award,Termination of Contract. 4.5 Payments & functions of issuing following certificates- Interim certificate, certificate of virtual completion, penultimate certificate & final certificate.	Presentations Lecture Using Chalk-Board Demonstration
5	TLO 5.1 Explain the terminologies used in development control regulations. TLO 5.2 Explain National, State, Local development control regulations and building byelaws.	**Unit - V Introduction to building byelaws and regulations** 5.1 Development Control Regulations (Definitions, Submission requirements, land use and classification of buildings, drawing requirements, setbacks and FSI). 5.2 Codes and Standards – National Building Code 2016/latest edition.	Presentations Lecture Using Chalk-Board Flipped Classroom

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES : NOT APPLICABLE.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Assignment

- Collect the Tender Notices from News paper advertisements.
- Collect the different contract documents from Architect's office.

Micro project

- Study of an Architect's Office: Visit an Architect’s office and prepare report under following heads: 1. Type of practice. 2. Location of office. 3. Various departments, their working and documentation. 4. Staff structure. 5. Planning of office and analysis.
- Prepare a report on byelaws applicable to residential buildings comes under local Municipal corporation.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Microsoft Office Software	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Architects Act,1972	CO1	8	6	6	3	15
2	II	Architect's Office Administration	CO2	8	2	6	2	10
3	III	Tender	CO3	16	3	6	6	15
4	IV	Contract	CO3,CO4	16	3	6	6	15
5	V	Introduction to building byelaws and regulations	CO5	12	6	6	3	15
Grand Total				**60**	**20**	**30**	**20**	**70**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Microproject, Team work, Self Learning (Assignment).

Summative Assessment (Assessment of Learning)

- Theory Paper.

XI. SUGGESTED COS - POS MATRIX FORM

PROFESSIONAL PRACTICE & BUILDING BYELAWS **Course Code : 325301**

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	1	-	-	2	1	2			
CO2	3	2	1	-	1	1	2			
CO3	3	1	1	-	2	1	2			
CO4	3	1	2	-	2	1	2			
CO5	3	1	1	-	2	1	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Dr. Roshan H Namavati	Professional Practice	Mr. Anup Lakhani, Lakhani Book Depot, Mumbai , ISBN-10: 9385492667 ISBN-13: 978-9385492662
2	Prof. Madhav Deobhakta, Ar. Meera Deobhakta	Architectural Practice in India	Council of Architecture, 2007, ISBN-13: 9788190662512
3	Council of Architecture	The Architect's Handbook	Council of Architecture
4	B.S. Patil	Civil Engineering Contracts & Estimates	Orient Longman Mumbai, ISBN-10: 9788173719578 ISBN-13: 978-8173719578
5	Govt. of India publication	The Architects Act, 1972 and its amendments	Govt. of India publication
6	Indian Standards Institution	National Building Code (2016)	Govt. of India publication
7	Govt. of Maharashtra, Urban Development Department	Unified Development Control and Promotion Regulations and it's amendments	Govt. of Maharashtra, Urban Development Department

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.coa.gov.in/	Council of Architecture
2	https://www.indiacode.nic.in/bitstream/123456789/1690/1/197220.pdf	Architect's Act 1972

PROFESSIONAL PRACTICE & BUILDING BYELAWS **Course Code : 325301**

Sr.No	Link / Portal	Description

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

ROAD SAFETY & MANAGEMENT **Course Code : 325303**

Programme Name/s	**: Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/**
Programme Code	**: AA/ AT/ IX/ IZ**
Semester	**: Fifth**
Course Title	**: ROAD SAFETY & MANAGEMENT**
Course Code	**: 325303**

I. RATIONALE

Effective road safety and management are crucial for reducing traffic accidents, savings lives, and minimizing injuries. implementing various measures such as improved road design, enforcement of traffic laws, and public awareness campaigns can significantly decrease the likelihood of accidents. Efficient road management also ensures smoother traffic flow, reducing congestion and environmental impact. This leads to safer, more reliable, and environmentally sustainable transportation systems. This course aims at to impart required knowledge of road safety measures to the diploma students so that likelihood of road accidents can be minimized.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

Minimize the road accidents & fatalities.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Analyze road accident characteristics in a given local region.
- CO2 - Classify road junctions based on its geometric features.
- CO3 - Identify different components of a given pathways for universal accessibility.
- CO4 - Draw different types of parking spaces.
- CO5 - Enlist traffic signals, signs, rules and regulations adopted in our country.
- CO6 - Identify road safety measures during a given event.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325303	ROAD SAFETY & MANAGEMENT	ELC	DSE	2	-	4	-	6	3	03	30	70	100	40	25	10	25@	10	-	-	150

Total IKS Hrs for Sem. : 0 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Discuss road safety scenarios in the given locality. TLO 1.2 Explain road accidents & its characteristics in the given locality. TLO 1.3 Demonstrate five P's of road safety.	**Unit - I Introduction to Road Safety** 1.1 Introduction and overview of road safety 1.2 Road traffic accidents scenarios. Road Safety and its importance, Characteristics of accidents. 1.3 Road safety awareness - Five P's of Road safety education: 1. Pre-school road safety education 2. Practical rather than theory education 3. Principles of own development as regards to road safety education. 4. Presentations on road safety education 5. Place for road safety education in syllabus	Presentations Collaborative learning Demonstration
2	TLO 2.1 Identify types of roads on a selected area. TLO 2.2 Enlist the types of road junctions in a given area. TLO 2.3 Identify different components of a given pathways for universal accessibility TLO 2.4 Draw different types of parking spaces.	**Unit - II Types of Roads.** 2.1 Introduction and different types of roads (Primary, secondary & tertiary), 2.2 Typology of roads as per standards, Heirachy of junctions (T, Y, Staggered, Skewed, Cross, Scissors). 2.3 Pathways - provision for universal accessilibity, sidewalks, central dividers, footpaths and central railings 2.4 Types of Parking, bus bays(Zones), bicycle lanes, off-street loading/unloading facilities.	Presentations Collaborative learning Site/Industry Visit Demonstration

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Discuss traffic control measures in a given situation. TLO 3.2 Identify types of traffic signals & signs on a given road segment. TLO 3.3 Prepare a report on rules and regulations of traffic in local region. TLO 3.4 Identify road safety indicators in a given road segment.	**Unit - III Traffic Control** 3.1 Introduction to traffic control measures. 3.2 Types of Traffic signals, advance AI systems & Signs. 3.3 Awareness about rules and regulations of traffic in India. 3.4 Road safety indicators/markings, barricades, speed breakers, table tops, traffic lighted bollards, reflectors, traffic cones & drums.	Presentations Collaborative learning Demonstration Site/Industry Visit
4	TLO 4.1 Prepare a report on the road safety measures adopted by the local authority. TLO 4.2 Discuss the role of road safety team in casualty reduction. TLO 4.3 Prepare a report on human behavior with respect to road safety in local area.	**Unit - IV Road Safety Measures** 4.1 Measures to improve road safety: road safety planning, 4.2 Road safety team and their role in casualty reduction. 4.3 Traffic safety and human behaviour.	Lecture Using Chalk-Board Presentations Collaborative learning
5	TLO 5.1 Prepare a report on the efforts taken by Government on Road Safety.	**Unit - V Road Safety Events** 5.1 Efforts taken by Government on road Safety.	Presentations

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Prepare a report on road safety and its importance	1	Road Safety and its importance	4	CO1
LLO 2.1 Prepare a report on activity conducted on any 1 of the 5 P's.	2	Five P's of Road safety education	4	CO1
LLO 3.1 *Draw a sketches of various types of road in a local region.	3	Types of Roads	4	CO2
LLO 4.1 *Prepare a report on different typology of roads, Right of way (ROW) with sections as per standards.	4	Typology of roads as per Indian standards.	4	CO2
LLO 5.1 *Prepare a report on online case study on different types of junctions.	5	Hierarchy of road junctions.	4	CO2
LLO 6.1 *Prepare a report on various components of roads, provision for universal accessibility, sidewalks, central dividers, footpaths and central railings.	6	Components of roads.	4	CO2
LLO 7.1 *Prepare a report with sketches on types of parking spaces required for different types vehicles.	7	Types of Parking.	4	CO2

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 8.1 *Prepare a report with sketches on types of Traffic signals & Signs.	8	Types of Traffic signals & Signs.	4	CO3
LLO 9.1 *Prepare a report on Rules and regulations of traffic in India (as per govt regulatory authority such as state RTO)	9	Rules and regulations of traffic in India	4	CO3
LLO 10.1 *Prepare a report on market survey/case study on Road safety indicators/markings, barricades, speed breakers, table tops, traffic lighted bollards, reflectors, traffic cones & drums..	10	Road safety components	4	CO3
LLO 11.1 Prepare a report on road safety provisions made by authorities during public events.	11	Measures to improve road safety	4	CO4
LLO 12.1 Prepare a report on interview with road safety persons such as Traffic police, wardens, etc.	12	Road safety team and their role in casualty reduction.	4	CO4
LLO 13.1 Prepare a report on analysis of instances of traffic violation through various means.	13	Traffic safety and human behavior.	4	CO4
LLO 14.1 Prepare case study report of efforts taken by govt authority on road safety.	14	Efforts taken by Government on Road Safety	4	CO5
LLO 15.1 Prepare a report on road safety measures adopted in foreign countries.	15	Road safety measures in other countries.	4	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Suggestions for enhancement of road safety in a neighborhood. Identity faults in an existing road in a Neighborhood, through graphical representation. Suggest appropriate ways and means to improvise road safety. Representation through drawings.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Sketchbook, Computer desktop, drawing software, LCD Projector, sketching and drafting tools, Printer.	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Introduction to Road Safety	CO1	6	2	4	8	14
2	II	Types of Roads.	CO2	7	4	4	8	16
3	III	Traffic Control	CO3	7	4	4	8	16
4	IV	Road Safety Measures	CO4	6	2	4	8	14
5	V	Road Safety Events	CO5	4	2	2	6	10
Grand Total				**30**	**14**	**18**	**38**	**70**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- Team work, assignment, Micro project (60% weightage to process & 40% weightage to product)

Summative Assessment (Assessment of Learning)

- Pen & paper test (written test), Sessional.

XI. SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	1	0	0	2	0	3			
CO2	3	2	0	1	2	0	3			
CO3	3	3	2	1	2	0	3			
CO4	3	3	3	1	2	1	3			
CO5	3	2	2	1	2	2	3			
CO6										

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Prabha Shastri Ranade	Road Safety Management: Issues and Perspectives	SBS Publishers and Distributors Pvt Ltd, ISBN: 9788131405314
2	Indian Roads Congress	Manual on Road Safety Audit	Publisher - Indian Roads Congress, ISBN: IRCSP88-2019
3	Praveen Chandra Shetty	Mission Advanced Road Safety 2019–2024 (An Insight into Road Traffic Accidents on Indian Motorways)	Walnut Publication (24 July 2019) ISBN-10 ? : ? 8194208610, ISBN-13 ? : ? 978-8194208617
4	By - Ashwini Bagga & Nisha Bagga	Essentials of Road Safety	Himanshu Publications (1 January 2015) ISBN-10 : ? 817906462X, ISBN-13: ? 978-8179064627
5	By - Naresh Raghavan	Car driving School Manual for India: The Essential Book for All drivers	Notion Press; 1st edition (3 July 2019); Notion Press Media Pvt Ltd No,50 ,Chettiyar Agaram Main Road , Vanagaram , Chennai - 600095 ISBN-10 : ? 1645872556, ISBN-13 : ? 978-1645872559

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://morth.nic.in/sites/default/files/road_safety_books.pdf	Road Safety Signage & Signs
2	www.unescap.org/sites/default/files/2.12.India_.pdf	Road Accidents in India Issues & Dimensions, Ministry of Road Transport & Highways Government of India

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

SITE PLANNING **Course Code : 325304**

Programme Name/s	**: Architecture Assistantship/ Architecture/ Interior Design & Decoration/ Interior Design/**
Programme Code	**: AA/ AT/ IX/ IZ**
Semester	**: Fifth**
Course Title	**: SITE PLANNING**
Course Code	**: 325304**

I. RATIONALE

Site planning is an integral stage in the process of Architectural Design. This course enables learners to analyze various layers of site planning - physical environment, climate analysis, development of site program and zoning, services, circulation, site design processes and strategies including creation of site plans.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

The learner shall be able to develop a detailed site plan for a given design project.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

- CO1 - Prepare a site plan of an existing site applying basic site planning concepts.
- CO2 - Prepare a detailed project brief of a given architectural project.
- CO3 - Develop a site zoning plan of a given architectural project.
- CO4 - Develop a sustainable site plan incorporating sustainable development strategies.
- CO5 - Develop a site volumetric model of a given architectural project.

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category/s	Learning Scheme					Credits	Assessment Scheme											
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
325304	SITE PLANNING	ELC	DSE	2	-	4	-	6	3	03	30	70	100	40	25	10	25@	10	-	-	150

Total IKS Hrs for Sem. : 2 Hrs
Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment
Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination
Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are (CL+LL+TL+SL)hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
1	TLO 1.1 Explain Principles of Site Planning. TLO 1.2 Explain various mapping methods- physical and digital. TLO 1.3 Interpret the scale of the plan of a given site. TLO 1.4 Apply graphical representation styles to the site plan.	**Unit - I Principles of Site Planning** 1.1 Physical context - location, topography, climate, vegetation, views and other existing features of the site. 1.2 Mapping the physical environment - collecting data in the form of maps, plans and photographs. 1.3 Mapping the intangible aspects of the site - cultural, socio-economic, sensory experience of the site. 1.4 Preparation of a scaled site plan of the existing site.	Site Visit Case study Lecture Using Chalk-Board Presentations
2	TLO 2.1 Explain various aspects of project brief as per site requirements. TLO 2.2 Develop area calculation tables using anthropometric data and space design standards. TLO 2.3 Conduct SWOT analysis of a given project site. TLO 2.4 Prepare a detailed site report using SWOT analysis conclusions.	**Unit - II Site Programming** 2.1 The project brief and its site requirements. 2.2 Site Programming - various functions and their area requirements based on the anthropometric data and space design standards. 2.3 SWOT analysis to understand the strength of the site, enumerate its weaknesses, identify opportunities offered by the site and possible threats, which need to be encountered. 2.4 A site report based on the SWOT analysis of the site and project brief.	Case Study Presentations Lecture Using Chalk-Board Collaborative learning

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Sr.No	Theory Learning Outcomes (TLO's)aligned to CO's.	Learning content mapped with Theory Learning Outcomes (TLO's) and CO's.	Suggested Learning Pedagogies.
3	TLO 3.1 Explain principles and importance of zoning. TLO 3.2 Developing built forms for different building structures. TLO 3.3 Develop a zoning plan for a given project site. TLO 3.4 Draw site sections indicating building plinth levels of a given project site. TLO 3.5 Explain various types of circulation networks.	**Unit - III Site Zoning** 3.1 Zoning plan - allotting areas for various functions of the design program 3.2 Building envelopes - orientation and form of the built volumes, setbacks 3.3 Built and Unbuilt - ratios of built and unbuilt, open space requirements, placement of site services 3.4 Calculating building plinth levels as per site sections. 3.5 Circulation - pedestrian and vehicular, horizontal and vertical, fire escape plans	Case Study Model Demonstration Lecture Using Chalk-Board Collaborative learning
4	TLO 4.1 Explain the importance of Sustainable Site Planning. TLO 4.2 Explain various sustainable development goals for sustainable site planning. TLO 4.3 Explain various sustainable site development strategies to achieve sustainable development goals.	**Unit - IV Sustainable Site Planning** 4.1 Evaluation of the site plan - environmental impacts, project costing, cultural impacts, user friendly 4.2 Social objectives - employment generation, water management, waste management, public recreational open spaces, improving health conditions etc. 4.3 Sustainable strategies - rain water harvesting, solar panels, sewage treatment plant, organic waste composter, sustainable building materials and other environmentally sustainable strategies.	Case Study Lecture Using Chalk-Board Demonstration Presentations
5	TLO 5.1 Draw site plan, sections and setting out plan on AutoCAD. TLO 5.2 Develop a 3D physical model of a given site using suitable model making materials.	**Unit - V Architectural Drawings and Models** 5.1 Detailed Site plan and site sections on AutoCAD using various commands. 5.2 Setting out plan of the site on AutoCAD. 5.3 A 3D physical model of a given site using suitable model making materials.	Model Demonstration Video Demonstrations Presentations

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 1.1 Identify the principles adopted for site planning through case study.	1	*Case study on site planning aspects.	2	CO1
LLO 2.1 Enlist various physical and intangible aspects of a given site.	2	*Identification of various physical and intangible aspects of a given site.	6	CO1
LLO 3.1 Prepare a site plan indicating the existing physical features of the site.	3	Mapping of existing physical features on a site plan.	2	CO1
LLO 4.1 Prepare a site plan indicating the intangible features of the site and overlay on the physical features.	4	Mapping of existing intangible features on the site plan.	2	CO1
LLO 5.1 Prepare an existing site plan to an appropriate scale on AutoCAD.	5	*Drawing an existing site plan to scale on AutoCAD.	4	CO1
LLO 6.1 Prepare a detailed project brief of the given project.	6	*Development of project brief of the given project.	4	CO2

Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
LLO 7.1 Analyze the strengths, weaknesses, opportunities and threats of the project site using SWOT analysis.	7	*Carry out SWOT Analysis of the project site.	4	CO1 CO2
LLO 8.1 Prepare a site report based on the site analysis and project brief.	8	Preparation of a detailed site report.	2	CO1 CO2
LLO 9.1 Prepare a zoning plan to an appropriate scale of the given project site.	9	*Preparation of a zoning plan for the given project site.	6	CO1 CO2 CO3
LLO 10.1 Develop a physical model of various forms of the built environment.	10	*Volumetric explorations through physical models.	6	CO3 CO5
LLO 11.1 Develop various sections of the site to scale.	11	*Development of site sections to scale.	6	CO3
LLO 12.1 Design a Circulation plan incorporating pedestrian and vehicular, horizontal and vertical and fire escape plans.	12	*Design of circulation plan.	4	CO3
LLO 13.1 Prepare a report of various sustainable strategies to be adopted in the site plan.	13	*Implementation of sustainable strategies in the site plan (IKS).	6	CO4
LLO 14.1 Develop proposed site plan and sections on AutoCAD.	14	*Drafting the proposed site plan and sections using AutoCAD.	6	CO2
LLO 15.1 Develop a 3D physical model of the site using appropriate model making materials.	15	*Development of 3D model of the site.	6	CO5

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)

Micro project

- Design a Site Plan for the given Architectural Design Project along with Site Analysis sheet, Plans, Sections and 3D Model

Assignment

- Prepare a detailed site analysis report based on the SWOT Analysis of the given site and project brief.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

Sr.No	Equipment Name with Broad Specifications	Relevant LLO Number
1	Model making workshop equipped with laser cutting machine, 3D Printer, model making material laboratory.	15
2	AutoCAD Software version 2015 or above	5,14
3	Computer with specifications such as 8GB RAM, SSD 500GB, LCD Monitor with relevant CAD software. (with the latest configuration)	All
4	Color printer preferably for the output of A-3 size paper All	All
5	LCD projector or SMART Interactive display panel	All

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

Sr.No	Unit	Unit Title	Aligned COs	Learning Hours	R-Level	U-Level	A-Level	Total Marks
1	I	Principles of Site Planning	CO1	24	8	4	4	16
2	II	Site Programming	CO2	18	5	5	5	15
3	III	Site Zoning	CO1,CO2,CO3	24	4	4	4	12
4	IV	Sustainable Site Planning	CO4	12	4	7	4	15
5	V	Architectural Drawings and Models	CO2,CO5	12	0	4	8	12
Grand Total				**90**	**21**	**24**	**25**	**70**

X. ASSESSMENT METHODOLOGIES/TOOLS

Formative assessment (Assessment for Learning)

- The continuous internal assessment for laboratory practicals.

Summative Assessment (Assessment of Learning)

- End semester Examination, Lab performance

XI. SUGGESTED COS - POS MATRIX FORM

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Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes* (PSOs)		
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO-1	PSO-2	PSO-3
CO1	3	1	2	2	2	1	2			
CO2	3	1	2	1	1	-	2			
CO3	3	1	2	1	1	-	2			
CO4	3	1	2	1	3	-	2			
CO5	3	1	2	2	1	-	2			

Legends :- High:03, Medium:02,Low:01, No Mapping: -
*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	Kevin Lynch	Site Planning	The MIT Press, ISBN 0-262-12-106-9
2	Thomas Russ	Site Planning and Design Handbook	McGraw Hill Professional, 2002 ISBN 0071500774, 9780071500777
3	Norman Booth	Foundations of Landscape Architecture: Integrating Form and Space Using the Language of Site Design	John Wiley & Sons, 2011 ISBN 1118129474, 9781118129470
4	Claudia Dinep, Kristin Schwab	Sustainable Site Design: Criteria, Process, and Case Studies for Integrating Site and Region in Landscape Design	John Wiley & Sons, 2010 ISBN 0470640243, 9780470640241
5	Meg Calkins	The Sustainable Sites Handbook	Publisher: John Wiley & Sons Inc ISBN: 9780470643556, 9780470643556
6	James A. LaGro Jr.	Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design	Publisher Wiley ISBN-13 978-1118123676

XIII . LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://thedesignbridge.in/blog/need-and-elements-of-site-planning	Need and Elements of Site Planning
2	https://indianinstituteofarchitects.com/pdf/exam/study-material/Part%20-%20II/Site%20Planning-%20igbc.pdf	Basics of Site Planning

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students

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MSBTE Approval Dt. 24/02/2025 **Semester - 5, K Scheme**