Curriculum
For
Certificate in Architectural Visualizer
One year Duration Course
Code: VD30S003

(2013)

Table of Contents

Section 1.01 Introduction

The architectural visualizer course has been deigned to develop the technical skills and the ability to visualize for architectural visualizers in three dimensions by learning various software used in industry for architectural visualization. The course is aimed for DAE certificate holder's draughtsman course certificate holders to enhance their skills and job opportunities as architectural visualizer for the industry.

- Name of course

  Architectural Visualizer

  One year (1600 hrs.)

Section 1.02 Overall objective of course

1. The prime objective of this course is to develop & enhance architectural visualizers to work in architectural industry by learning 3d modeling and architectural visualization.
2. Skilled visualizers and new visualizers produced by this course will provide the work force that is much needed by architectural offices presently.
3. Course will provide opportunity for visualizers to work professionally by joining architectural industry and working independently as free lancers.
4. This curriculum is focused to train the Matric pass persons with prior draughtsman course.
5. Further, this Curriculum is developed by considering the requirements of local and international market and need of the trade enabling the pass-outs to meet the job market.

6. Architectural visualizers act as multi-dimensional workers at architectural offices with knowledge of computer management, networking, and printing and presentation requirements, thus the course offers visualizers to get training for such valuable traits.

Section 1.03 Competencies gained after completion of course Knowledge competencies

1. Ability to understand architectural drawings to produce Architectural Visualizations using different software in variable environments.
2. As day by day new software are emerging in trade, architectural visualisers will not only be proficient software specific training but ready to adopt forthcoming software update and ideas.
3. Visualizers will perform professional practice norms required to integrate in team environment and to work independently.

(a) Skill competencies

1. Visualizers will be skilled to identify the job to perform in suitable method/ software as required by client / office.
2. Visualizers will be skilled to model basic to detailed architectural models of exteriors and interiors.
3. Visualizers will be skilled to produced renderings from initial renders to finished renders for approvals and presentations.
4. Visualizers will attain sufficient skills to rectify problems regarding computers, data handling, networking, presentation and printing etc.
5. Visualizers will work cohesively in a team or independently to maintain the work in a managed way seeking approvals at required stages and perform efficiently.
6. Visualizers will keep data libraries and keen to do research and development to enhance their skills.

7. Visualizers will be motivated to work accurately by taking responsibilities assigned to them and produce work on deadlines.

(b) Job opportunities available immediately and in the future

Architectural visualizers will have job opportunity in architectural industry and perform free lancing for the industry.

(c) Trainee entry level

Matric, DAE
Pre requisite 2d draughtsman course
Persons having knowledge of understanding and creating architectural drawings.

(d) Minimum qualification of trainer

DAE,
Having at least 5 year experience of architectural visualization with extensive work portfolio.
Trainers or Technical Staff should have the ability to communicate and impart technical and conceptual skills.
Trainer should be proficient in use of AutoCAD, 3d studio MAX, Sketch up& Photoshop.
Trainer must be proficient in hardware maintenance.
Trainer should have concrete knowledge and experience of professional practice.

(e) Medium of Instruction i.e. language of instruction

Urdu and English.

(f) Sequence of the modules

Module 1 is foundation module and will be first module in training
Module 5 is also foundation module and will be started after module 1.
Module 2 will start after module 1 is complete.
Module 3 is core module and it will start after completion of module1.
Module 4 is also core module and it will commence after completion of module1, it can start simultaneously with module 3 or after completion of module3.

(g) Timeframe of assessment (recommendation)

Assessments should be scheduled during modules and at the completion of modules, depending on the exercises assigned.

Section 1.04 SCHEME OF STUDIES

(Architectural Visualizer–One Year Course)

Sr. No.	Module	Theory Hours	Practical Hours	Total Hours
1	**Module1** Understand architectural drawings and use different software.	**40**	**200**	**240**
2	**Module 2** Create 3d Model	**60**	**240**	**300**
3	**Module 3** Visualize exteriors	**80**	**320**	**400**
4	**Module 4** visualizes interiors	**80**	**380**	**460**
5	**Module 5** Perform trouble shooting/ management, editing of work and database	**40**	**160**	**200**
		300	**1300**	**1600**

1. Overview about the program –Curriculum for (Architectural Visualizer)–

Module Title and Aim	Learning Units	Theory[1] Days/hours	Workplace[2] Days/hours	Timeframe of modules
Module 1 Understand and use architectural drawings, different software and tools	- **LU1**Orientation / Introduction to course - **LU2**Understand History - **LU3**Drawarchitectural Drawings - **LU4**Use AutoCAD - **LU5**UseSketchup - **LU6**Use3d Studio MAX - **LU7**UseAdobe Photoshop - **LU8**Take Project requirements - **LU9**Prepare work methodology	40hrs.	200hrs.	240 Hrs. At the start of course
Module 2 Create 3d Model	- **LU1**Create& Edit existing Model in AutoCAD - **LU2**Create & Edit existing Model in SketchUP - **LU3**Create & Edit existing Model in 3d Studio MAX - **LU4**Integrate 3d model & files between software.	60hrs.	240hrs.	300 Hrs. After Completion of **Module 1 LU5**
Module 3 Visualize exteriors	- **LU1**Manage and organize work - **LU2**Make Wireframe model - **LU3**Makeclay models - **LU4**Create Lighting - **LU5**Create and assign Materials - **LU6**Add Props - **LU7**Rendering/ post production	80hrs.	320hrs.	400 Hrs. After Completion of **Module 2**

[1] Learning hours in training provider premises
[2] Training workshop, laboratory and on-the-job workplace

Module 4 Visualize interiors	- **LU1**Manage and organize work - **LU2** Make Wireframe model - **LU3**Makeclay models - **LU4** Create Lighting - **LU5** Create and assign Materials - **LU6** Add Props - **LU7**Rendering/ post production	80hrs.	380hrs.	460 Hrs. After Completion of **Module 3**
Module 5 Perform Trouble shooting/ management, editing of work and database	- **LU1**Data Management - **LU2** File handling and organization - **LU3**Use of various software/ hardware - **LU4**Keep Library/ Use Internet - **LU5**Learn Professional practice/ Make portfolio - **LU6**Maintain health &Safety - **LU7**Research and development of skills	40hrs.	160hrs.	200 hrs. After Completion of **Module 1**

Section 1.05 (Architectural visualizer)Curriculum Contents (Teaching and Learning Guide)

Module1: Understanding of architectural drawings and use of different software
Objective of the Module: To understand and perform architectural visualisation by learning software and drawing aprehension
Duration: 240hours Theory:40hours Practice:200 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration hrs.	Materials Required	Learning Place
1. LU1 Orientation / introduction to course	Able to understand course outline and schedule	Knowledge of: i. Course outline ii. Studio/ work ethics iii. Assessment criteria of work Ability to: Attend the course according to rules	5hrs.	- Course Outline - Schedule / time table	Classroom/ lab
2. LU2 Understand History of visualization and computer terminology	Able to understand architectural visualization and computer terminology and perform 3d visualization	Knowledge of: i. Architectural visualization ii. Computer Fundamentals iii. Photography iv. Computer graphics (CG) v. Vector vi. Raster vii. Terminology related to visualization viii. File utilities and	10hrs.	- Reference books for history, computer graphics & architecture - Reference projects - Computer	Classroom/ lab

		cloud services ix. Windows OS x. CG development Ability to: Use computer for architectural visualization i. Use internet ii. Setup computer for work iii. Using file Utilities i.e. archiving and using cloud storage services.			
3. LU3 Understand architectural and perspective drawings	Able to create architectural design drawings with respect to visualization Able to understand scale perspective distortion, composition light, shade and produce architectural photograph	Knowledge of: I. Architectural drawings II. Perspective III. Shadows, colours and lighting IV. Scale V. Composition VI. Project units VII. Architectural photography Ability to: I. Visualize delineation upon given data. II. Draw & understand Sketching III. Make detailing create architectural	10hrs.	- Reference books for computer graphics & architecture - Reference projects - Computer	Classroom/ lab

		photographs from a sketch./model IV. Take architectural photographs			
4. LU4 Use AutoCAD	Able to perform architectural work on AutoCAD and integrate with different software	Knowledge of: AutoCAD i. Software Installation ii. Interface iii. File management/ Integration iv. Creating architectural drawing from model Ability to: i. Draw basic architectural Model and drawing ii. Use layers and groups iii. Lines and points in 3 dimensions iv. 3d Faces v. Use User Coordinate System for 3d vi. Primitive objects & volumes vii. Transformations viii. Extrude & Lofts ix. Interchange & integration	50hrs.	- Reference books for computer graphics & software - Reference projects - Computer	Classroom/ lab

		x. Make final Exercise			
5. LU5 Use SketchUP	Able to perform work on SketchUP and integrate with different software	Knowledge of: SkecthUP i. Install Software ii. Interface iii. Integration of models& Raster images. iv. Install plugins Ability to: i. Draw Sketch up Model ii. Lines and points iii. Faces iv. Primitive & volumes v. Transformations vi. Extrude & Lofts vii. Use props and textures viii.	35hrs.	- Reference books for computer graphics & software - Reference projects - Computer	Classroom/ lab
6. LU6 Use 3d Studio MAX	Able to perform work on 3d Studio MAX and integrate with different software	Knowledge of: 3D MaxStudio installation i. Install Software ii. Interface iii. Integration of models iv. Install Plugins Ability to: i. Draw 3d Studio	65hrs.	- Reference books for computer graphics & software - Reference projects - Computer	Classroom/ lab

		MAX Model ii. Lines and points iii. Faces iv. Primitive objects& volumes v. Transformations vi. Extrude & Lofts vii. Use plugins viii. Make Final Exercise			
7. LU7 Use Adobe Photoshop	Able to perform work on Adobe Photoshop and integrate with different software	Knowledge of: Adobe Photoshop i. Interface ii. File handling iii. Raster image Ability to: i. Draw new Images ii. Draw 2d renderings iii. Edit images iv. Make Textures v. Transform Images properly vi. Make presentations	40hrs.	- Reference books for computer graphics & software - Reference projects - Computer	Classroom/ lab
8. LU8 Take Project requirements	Able to perform project handling	Knowledge of: Client/resource handling i. Communication with resource ii. work plan and revisions	10hrs.	- Reference projects - Computer	Classroom/ lab

		Ability to: Understand project brief and take requirements i. Interact with resource person ii. take requirements iii. Conduct negotiation			
9. LU9 Prepare work methodology	Able to perform project, exercising agreement and documentation in suitable manner	Knowledge of: Project handling i. Managing work time line and revisions ii. Payment method iii. Agreement/ contracts Ability to: Communicate work plan and payment method with client i. Undertake agreement ii. Plan work and iii. Payment of work iv. Make agreement	10hrs.	- Reference books for computer graphics & software - Reference projects - Computer	Classroom/ lab

Module2: Create 3d Model
Objective of the Module: To perform architectural visualisation by learning 3d modeling in different software.
Duration: 300 hours Theory:60 hours Practice:240 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration hrs.	Materials Required	Learning Place
1. LU1 Create Model in AutoCAD	Able to perform architectural 3d modeling in AutoCAD and integrate with other applications usage and perform	Knowledge of: Architectural 3d modeling for visualization and integration with applications Ability to: Perform architectural 3d modeling i. Use Layers ii. UCS iii. Use of view ports iv. Draw Polylines on plan v. Extrude Objects vi. Make Mass Model vii. Compound Objects viii. add details elements ix. Mesh/surface Modeling x. Editing Model elements xi. Referencing external objects	90hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab

		ii. Final exercise			
2. LU2 Create Model in SketchUP	Able to perform architectural 3d modeling in SketchUP and integrate with other applications.	Knowledge of: Architectural 3d modeling for visualization using SketchUPand integration with applications Ability to: Perform architectural 3d modeling i. import CAD dwg and jpg ii. Spline and Shape Modeling iii. Use layers iv. Groups, component v. Low-poly vi. Modeling vii. Mesh Modeling viii. Compound Objects ix. Poly modeling x. Poly Editing xi. Path Modeling iii. Integration of objects iv. Final exercise	50hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab
3. LU3 Create Model in 3D Studio MAX	Able to perform architectural 3d modeling in 3d Studio MAX and integrate with other applications.	Knowledge of: Architectural 3d modeling for visualization using 3dstudio MAX and integration between applications	120hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab

		Ability to: Perform architectural 3d modeling i. import CAD dwg and jpg ii. Spline and Shape Modeling iii. Sub-objects iv. Low-poly v. Surface/ Mesh Modeling vi. Compound Objects vii. Poly modeling viii. Poly Editing ix. Path Modeling/ Nurbs v. Integration of objects vi. Final exercise			
4. LU4 Integrate / edit Models between different applications	Able to integrate architectural 3d modeling in different application.	Knowledge of: Architectural 3d modeling for visualization using AutoCAD, Sketch UP and 3D Max software and integration between applications Ability to: Perform architectural 3d modeling and integrate with different application i. Import / export ii. Editing models	40hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab

Module3:visualize exteriors

Objective of the Module: To perform architectural exterior visualisation by learning 3d modeling, lighting, materials/ shaders and post production.
Duration: 400hours Theory:80hours Practice:320 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration hrs.	Materials Required	Learning Place
1. LU1 Manage and organize work	Able to manage work and choose right application for job	Knowledge of: Software used in visualization Ability to: Plan architectural 3d visualization work for exterior Choose the right application for different jobs.	10hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab
2. LU2 Make Wireframe model	Able to complete project in wire frame for different stages of work	Knowledge of: Architectural drawings, details and data Ability to: Apprehend architectural drawings and create them. i. Make Mass Model ii. Add walls iii. Add windows/ doors iv. Make Floors v. Make Ceilings/roofs vi. Add site	30hrs.	- Reference projects / images - Computer -	Classroom/ lab

		pavements and environment. vii. Add Details			
3. LU3 Make clay model	Able to complete project in clay (grey render without material) for different stages of work	Knowledge of: Architectural model, basic environment and camera views Ability to: Create clay model and get approvals. i. Make Clay Render Mass Model for approval ii. Make clay Render Details iii. Make different views for approval iv. Perform final exercise.	10hrs.	- Reference projects/ images - Computer -	Classroom/ lab
4. LU4 Create Lighting / setting cameras	Able to illuminate the 3d scene with to take approvals and exercise different lighting moods.	Knowledge of: Lighting and shadows in real life and its application in 3d Ability to: Produce lighting and setting cameras on 3d model i. Set Direct lights ii. Set Sunlight & positioning iii. Set indirect lighting iv. Set Volume lights v. Adjust Light moods, day, night,	100hrs.	- Reference projects - Computer - Exercise project - Take photographs for lighting and camera compositions and exposure.	Classroom/ lab

		dusk. vi. Setting cameras vii. Learn to control Mental ray lighting viii. Learn to control Vray lighting. ix. Learn effect of materials on lightingShaders& environment light x. Perform final exercise			
5. LU5 Create and assign materials / shaders and exercise rendering engines	Able to furnish the 3d scene with materials/ take approvals	Knowledge of: Materials in real life and its application in 3d Ability to: Produce materials on 3d model i. Standard materials ii. Prepare maps and textures. iii. Compound and other materials iv. Set Mental ray materials v. Set Vray materials vi. Physical materials vii. Animated materials viii. Maintain material libraries. ix. Map modifiers x. Understand effect of Shaders& environment light	100hrs.	- Reference projects - Computer - Exercise project - Take photographs for materials	Classroom/ lab

		with respect to materials. xi. Perform final exercise.			
6. LU6 Place props in model	Able to place props &take approvals	Knowledge of: Adding props in scene by studying real life Ability to: Produce complete environment props on 3d model i. Adding Props ii. Use proxy objects. iii. Use Instances and references iv. Use 3rd party plugins. v. Use cross referenced files vi. Perform final exercise.	50hrs.	- Reference projects - Computer - photographs for real life props	Classroom/ lab
7. LU7 Perform Render and Post production	Able to finish visualization with props and post production	Knowledge of: Render settings of various render engines, post production and finishing Ability to: produce architectural exterior visualizations and get approvals i. Use standard and other rendering engines	100hrs.	- Reference projects - Computer	Classroom/ lab

		ii. Working with environment Atmospheric effects iii. Use Render element and effects iv. Adjust Render settings v. Perform Network rendering vi. Get render outputs vii. Perform post production by Compositing &using channels viii. Final render			

Module4:visualizeinteriors
Objective of the Module: To perform architectural exterior visualization by learning 3d modeling, lighting, materials/ shaders and post production.
Duration: 320 hours Theory:60 hours Practice:260 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration hrs.	Materials Required	Learning Place
1. LU1 Management	Able to manage work and choose right application for job	Knowledge of: Software used in visualization Ability to: Perform architectural 3d visualization work for exterior	10hrs.	- Reference books for 3d modeling, computer graphics & architecture - Reference projects - Computer	Classroom/ lab
2. LU2 Make Wireframe model	Able to complete project in wire frame for different stages of work	Knowledge of: Architectural drawings, details and data Ability to: Apprehend architectural drawings and create them. i. Create Mass Model ii. Create and modify detailed interior model iii. Create custom furniture, counters, casework and add details.	30hrs.	- Reference projects / images - Computer - Exercise project	Classroom/ lab

3. LU3 Make clay model	Able to complete project in clay (grey render without material) for different stages of work	Knowledge of: Architectural drawings, details and data Ability to: Apprehend architectural drawings and create them. i. Create clay/Mass Model for approval ii. Create clay model of furniture model for approvals. iii. Add detail to clay models iv. Make various views for approval.	30hrs.	- Reference projects/ images - Computer - Exercise project	Classroom/ lab
4. LU4 Create Lighting / setting cameras	Able to lit the 3d scene with to take approvals and exercise different lighting moods	Knowledge of: Lighting in real life and its application in 3d Ability to: Produce lighting and setting cameras on 3d model i. Set Direct lights ii. Set Sunlight & positioning iii. Set indirect lighting iv. Set Volume lights v. Use of sky light	110hrs.	- Reference projects - Computer - Exercise project - Take photographs for lighting and camera compositions	Classroom/ lab

		portals. vi. Adjust Light moods, day, night, dusk. vii. Setting cameras viii. Learn to control Mental ray lighting ix. Learn to control Vray lighting. x. Learn effect of materials on lighting Shaders & environment light xi. Perform final exercise			
5. LU5 Create materials / shaders and exercise rendering engines	Able to furnish the 3d scene with materials/ take approvals	Knowledge of: Materials in real life and its application in 3d Ability to: Produce materials on 3d model xii. Standard materials xiii. Prepare maps and textures. xiv. Compound and other materials xv. Set Mental ray materials xvi. Set Vray materials xvii. Physical materials xviii. Animated materials xix. Maintain material libraries. xx. Map modifiers	120hrs.	- Reference projects - Computer - Exercise project - Take photographs for materials	Classroom/ lab

		xxi. Understand effect of Shaders &environment light with respect to materials. xxii. Perform final exercise.			
6. LU6 Place props in model	Able to place props / take approvals	Knowledge of: Adding props in real life and its application in 3d Ability to: Produce complete environment props on 3d model i. Adding plants ii. Adding furniture iii. Adding appliances iv. Lighting fixtures etc.	80hrs.	- Reference projects - Computer - Exercise project - Take photographs for real life props	Classroom/ lab
7. Finishing / Post production	Able to finish visualization with props and post production	Knowledge of: Render settings and finishing Ability to: produce architectural exterior visualizations for approvals i. plug-ins ii. Working with environment Atmospheric effects iii. Render element	80hrs.	- Reference projects - Computer - Exercise project	Classroom/ lab

		and effects iv. Render settings v. Network rendering vi. Compositing & channels vii. Final render			

Module5: Trouble shooting/ management, editing of work and database

Objective of the Module: To understand and perform proffesional practice of architectural visualization
Duration: 200hours Theory:40hours Practice:160hours

Learning Unit	Learning Outcomes	Learning Elements	Duration hrs.	Materials Required	Learning Place
1. LU1 Management and organization	Able to work in different software / hardware environment Able to distribute work between team members, and to work as a team member.	Knowledge of: Hardware, software and work management Ability to: i. Work in organize manner ii. Maintain system data iii. Maintain hardware / install hardware and software.	20hrs.	- Reference books for computer graphics &software - Reference exercise - Computer - Printer	Classroom/ lab
2. LU2 File handling	Able to organize and handle files and system data and hardware.	Knowledge of: Hardware, software and work management Ability to: i. Maintain Files / Folders / nomenclature ii. Maintain record of data and backups.	20hrs.	- Reference books for computer graphics & software - Reference exercise - Computer - Printer	Classroom/ lab

3. LU3 Maintain and secure data, software and hardware	Able to use different software utilities/ hardware and troubleshoot errors.	Knowledge of: Hardware and software Ability to: i. Maintain Hardware / Install hardware ii. Use, install and update antivirus and other utilities. iii. Perform basic Troubleshooting of system and network errors	30hrs.	- Reference books for computer graphics & software - Reference exercise - Computer - Printer	Classroom/ lab
4. LU4 Keep library /Learn to Use internet	Able to use internet and index resources for work	Knowledge of: Maintaining work Assets for computer graphics and use of internet Ability to: i. Maintain work assets ii. Use internet browsing and downloading iii. Download software updates iv. Download and upload models/ materials and work samples v. Join blogs for 3d graphics vi. Use email and internet cloud	30hrs.	- Reference projects / files - Computer - Printer - Data storage	Classroom/ lab

		storage services.			
5. LU5 Professional practice / Learn employability Skills, business development and profile management	Able to work as an employer and employee or free lancer	Knowledge of: Professional practice and documentation Ability to: work professionally i. Make cv ii. Make portfolio/profile iii. Write applications iv. Write contracts v. Write invoices	40hrs.	- Reference projects - Reference Professional documents - Exercise projects	Classroom/ lab
6. LU6 Maintain health and safety	Able to work alone and in a team as employee or freelancer safely	Knowledge of: Professional health and safety standards, sitting postures, and light conditions. Ability to: Maintain personal and others health safety	20hrs.	- Reference projects - Reference Professional documents - Health and safety rules - Ergonomics references	Classroom/ lab

7. LU7 Improve by research and development	Able to enhance work performance and quality and keep up-to-date.	Knowledge of: Professional practice Ability to: upgrade by doing research on skill development and keep up-to-date with emerging software/ hardware.	40hrs.	- Reference projects - Reference Books - Keeping in touch with internet resource	Classroom/ lab

Section 1.06 Assessment

Module 1 (Understand architectural drawings and use different software)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. **LU1**Orientation	4Hrs.	1Hrs.	Short assignments in groups, individual report presentations Describe rules, regulation and ethics of course	MCQ / Short answer True false	At the end of LU1
2. **LU2**Understand History of visualization and computer terminology	8Hrs.	2Hrs.	i. Describe visualization formats used in architecture. ii. Describe computer specification required in visualization. iii. What is the role of photography? iv. Describe Computer graphics (CG) v. Describe vector and raster formats? vi. How do you setup computer for work? vii. How do you uncompress a zip file?	MCQ / Practical Skill Test	At the end of LU2

			viii. Provide 5 links, sites/ portals of architectural visualization		
3. LU3 Understand architectural drawings and perspective	8 Hrs.	2 Hrs.	I. Describe perspective? II. Describe sunlight with respect to north light? III. How do you define scale and on a drawing? And how does it affect perception in perspective. IV. Describe role of scene Composition V. Convert metric to imperial scales and vice versa. V. Explain how to draw delineation. VI. Describe nomenclature of architecture. VII. Make detailing of a door. VIII. Take Photographs to study light, shade, shadows, light moods and composition of scenes of buildings and interiors.		

4. **LU4**Use AutoCAD	15 Hrs.	35 Hrs.	i. Draw basic AutoCAD Model from plan. ii. Describe how 3D objects are represented in terms of faces iii. Draw from raster data. iv. Perform final Exercise of LU4	MCQ / Practical Skill Test	At the end of LU3
5. **LU5**Use SketchUP	5 Hrs.	30 Hrs.	i. Import file from AutoCAD. ii. Draw Basic SketchUP Model from plan. iii. Draw from raster data. iv. Perform final Exercise	MCQ / Practical Skill Test	
6. **LU6**Use 3d Studio MAX	15 Hrs.	50 Hrs.	i. Import file from AutoCAD & SketchUP. ii. Draw MAX Model from plan. iii. Draw Primitives. iv. Use transformations v. Perform final Exercise	MCQ / Practical Skill Test	

7. LU7 Use Adobe Photoshop	10hrs.	30 hrs.	i. Import file from AutoCAD. ii. Make plan rendering in 2d iii. Edit images. iv. Apply transformation on images. v. Make tile able texture vi. Perform final Exercise		
8. LU8 Take project requirements	5hrs.	5hrs.	i. Exercise a sample project by taking requirements in groups. ii. Describe work flow and plan project for visualization		
9. **LU9**Prepare work methodology	5 Hrs.	5 Hrs.	i. Plan a sample project and make agreement. ii. Make sample invoices.	MCQ / Practical Skill Test	

Module2: Create 3d Model

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. **LU1**Create model in AutoCAD	20Hrs.	70Hrs.	i. Describe nomenclature of layers and objects. ii. Draw plan and make mass model iii. Add detail elements to basic mass model. iv. Use Mesh Modeling technique to build a simple model element. v. Edit an existing model. vi. Demonstrate usage of reference external objects/ files vii. Import / export different format files viii. Prepare final model project.	MCQ / Short answer	At the end of LU1
2. **LU2**Create model in SketchUP	10 Hrs.	40 Hrs.	i. Employ Use of Layers in building models. ii. Draw Polylines and perform	MCQ / Practical Skill Test	At the end of LU2

			simple extrusions. iii. Create some objects by using Compound Objects iv. Prepare a simple architectural Mass Model v. Add details to a simple mass model. vi. Create objects by using Mesh Modeling technique. vii. Demonstrate use of Referencing external objects viii. Integrate objects from other applications.		
3. **LU3**Create model in 3d Studio MAX	25Hrs.	95Hrs.	i. Import CAD/ SketchUP files. ii. Make plan by using spline and Shapes. iii. Prepare Low-poly Model and control poly count. iv. Employ Poly modeling techniques to build model. v. Export objects in	MCQ / Practical Skill Test	At the end of LU3

			different formats. vi. Prepare final model project		
4. **LU4**Integrate / Edit Model	5Hrs.	35Hrs.	i. Import / export files in each format. ii. Edit models from imported files. iii. Make final exercise of all formats	MCQ / Practical Skill Test	

Module 3(Visualize exteriors)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. **LU1**Manage Work	5Hrs.	5Hrs.	i. Prepare a methodology for preparation of architectural 3d exterior visualization workflow. ii. Prepare a time schedule for revisions and approvals	MCQ / Practical Skill Test	
2. **LU2**Make Wireframe model	5Hrs.	15Hrs.	i. Prepare at least 3 detailed wire frame architectural models.	Practical Skill Test	
3. LU3 Make clay Model	5 Hrs.	15 Hrs.	i. Prepare clay model, set cameras in a sample project.	Practical Skill Test	
4. **LU4**Create Lighting/setting cameras	20Hrs.	80Hrs.	i. Prepare and compose a scene using standard lights. ii. Prepare and compose a scene using VRay Lights.	MCQ / Practical Skill Test	

			iii. Prepare and compose a scene using MRay lights. (employ day, dusk, and night moods) iv. v.		
5. LU5 Create and assign Materials/ shaders and exercise rendering engines.	20 Hrs.	80 Hrs.	i. Describe standard shaders. ii. Prepare a simple model to demonstrate use of various types of materials. iii. Prepare a simple model with transparent and refractive materials using Mental Ray and Vray. iv. Describe Map modifiers v.	MCQ / Practical Skill Test	
6. LU6 Add props in model	5 Hrs.	45 Hrs.	i. Populate a simple scene with props of own choice. ii. Describe difference between copied object and an instance.	MCQ / Practical Skill Test	

			iii. Prepare a complex scene by cross referencing props and simple models. iv.		
7. **LU7** Perform render and post production	20 Hrs.	80 Hrs.	i. Use render elements to demonstrate depth of field, material ID, image alpha. And other elements. ii. Prepare 4 scenes for different lighting moods, of Sunny Day, Overcast, Evening/Dusk and night. iii. iv. Demonstrate Network rendering skills. v. Apply channels for composting raw rendered images. vi. Create Final render	MCQ / Practical Skill Test Final Project	

Module 4(visualize interiors)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. **LU1**Manage Work	5 Hrs.	5 Hrs.	i. Prepare a methodology for preparation of architectural 3d interior visualization work flow. ii. Prepare a time schedule for revisions and approvals	MCQ / Practical Skill Test	
2. **LU2**Make Wireframe model	5 Hrs.	25 Hrs.	Prepare at least 3 detailed wire frame interior models.	Practical Skill Test	
3. LU3 Make clay Model	5 Hrs.	25 Hrs.	i. Prepare clay model, set cameras in a sample project.	MCQ / Practical Skill Test	
4. **LU4**Create Lighting	25 Hrs.	85 Hrs.	i. Prepare and compose a scene using standard lights. ii. Prepare and compose a scene using VRay Lights.	MCQ / Practical Skill Test	

			iii. Prepare and compose a scene using MRay lights iv. Prepare interior scene with natural lights.		
5. LU5 Create Materials	30 Hrs.	90 Hrs.	i. How to control effect of maps/shaders when seen at close range? ii. Prepare a scene using self-illuminated material lights in Vray and mental ray. iii. Prepare a simple interior scene with transparent and refractive materials using Mental Ray and Vray. iv. Prepare custom maps for various 3d interior elements.	MCQ / Practical Skill Test	

6. LU6 Add props	15 Hrs.	65 Hrs.	i. Populate a simple interior scene with props of own choice. ii. Demonstrate significance of use of proxy objects in interior scene. iii. Prepare a complex scene by cross referencing props and detailed interior models.	MCQ / Practical Skill Test	
7. **LU7** Perform Finishing/ post production	20 Hrs.	80 Hrs.	i. Use render elements to demonstrate depth of field, material ID, image alpha. And other elements. ii. Prepare 1 scene each by using natural and artificial light conditions. Employ Vray and mental ray. iii. Apply channels for composting raw rendered images. iv. Create Final render	MCQ / Practical Skill Test Final Project	

Module 5(Trouble shooting/ management, editing of work and database)

Learning Units	Theory Days/hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. **LU1** Management and organization	10hrs.	10hrs.	i. Plan & present organization of work flow. ii. Describe how to acquire missing information and data from resource. iii. Describe how to Maintain system data iv. Demonstrate to install different hardware components.	MCQ / Practical Skill Test	
2. **LU2** File handling	5hrs.	15hrs.	i. Describe an organized Files / Folders / nomenclature ii. Demonstrate how to Maintain record of data	MCQ / Practical Skill Test	
3. **LU3**Maintain and secure data, software and hardware.	5hrs.	25hrs.	i. Describe how to maintain Hardware / Install hardware ii. Demonstrate	MCQ / Practical Skill Test	

			software, antivirus/ updates and Installation		
4. **LU4** Keep library /Learn to Use internet	5hrs.	25hrs.	i. Demonstrate how to Maintain work assets ii. Demonstrate internet browsing, downloading and sharing by uploading. iii. Demonstrate models/ materials samples download iv. Describe use of CG blogs for resources v. Demonstrate Use of email and internet storage.	MCQ / Practical Skill Test	
5. **LU5** Professional practice / Learn employability Skills, business development and profile management	10hrs.	30hrs.	i. Present your cv ii. Present your portfolio iii. Demonstrate to write your applications iv. Prepare sample contacts v. Present sample invoices	MCQ / Practical Skill Test	

6. **LU6** Maintain health and safety	10hrs.	10hrs.	i. Describe how to keep work safe ii. Describe how to keep yourself safe during work. iii. Describe importance of ergonomics for better performance.	MCQ / Practical Skill Test Sample projects	
7. **LU5** Improve by research and development	5hrs.	35hrs.	i. Describe software and hardware upgrade ii. Describe plugins and other errors and how to rectify them. iii. Demonstrate how your performance is enhanced by research and development.	MCQ / Practical Skill Test / final project	Test of LU5 at the last day of training

Section 1.07 Supportive notes

- Assessment context
- Critical aspects
- Assessment condition
- Resources required for assessment

Section 1.08 List of Tools, Machinery & Equipment

Name of Trade	Architectural Visualiser
Duration	One year

Sr. No.	Name of Item/ Equipment / Tools	Qty.
1.	Computer (minimum Core i7 with 8GB ram and 1GB VGA, pixel shader 3.0, Solid state Drive (SSD))	1 per student
2.	Uninterruptible Power supply	
3.	Backup Power Generator	
4.	Colour Laser Printer A3	4 Nos.
5.	Internet Access	
6.	Reference Books on Architecture, visualization, Computer Graphics, AutoCAD, SketchUP, 3d Studio MAX, Mental ray, Vray, Photoshop, 64bit Windows OS, Hardware etc.	
7.	Reference Graphics/ Projects/ Documents for all modules	
8.	Digital cameras 12 mega pixel	
9.	Multimedia Projector	
10.	Networking (LAN)	
11.	First aid box	
12.	White Board	
13.	Flat bed Scanner	
14.	LCD 42”	

Section 1.09 List of Consumable Supplies

Name of Trade	Architectural Visualiser
Duration	One year

Sr. No.	Name of Consumable Supplies
1.	Paper for printing (A4 & A3)
2.	Lead Pencils
3.	Colour Markers
4.	Colour Pencils
5.	Stapler
6.	Thumb pins
7.	Laser Pointer
8.	Erasers.
9.	Board Markers

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