File Ref.No.4719/GA - IV - E1/2012/CU

UNIVERSITY OF CALICUT

Abstract

Faculty of Engineering - Rules, Regulations & Syllabus of Diploma in Architectural Visualization through the School of Distance Education, University of Calicut – Approved – Implemented – Orders issued.

UNIVERSITY OF CALICUT (G & A - IV - E)

U.O.No. 3804/2013/CU Dated, Calicut University.P.O, 09.09.2013

Read:-1. Minutes of the meeting of the Board of Studies in Architecture held on 30.07.2012 (item No. 4).

2. Minutes of the meeting of the Board of Studies in Architecture held on 29.10.2012

3. Minutes of the Faculty of Engineering held on 05.11.2012 (item No. 7)

4. Minutes of the meeting of the Board of Studies in Architecture held on 12.06.2013(item No. 1)

5.Minutes of the Faculty of Engineering held on 24.07.2013 (item No. 2)

6. Minutes of the Academic Council held on 30.07.2013 (item No. IIF & II E respectively)

7. letter from the Chairman, Board of Studies in Architecture dt. 05.09.2013.

8.Orders of the Hon'ble Vice Chancellor in the file No. 37488/GA-IV-E2/2013/CU dt. 07.09.2013.

ORDER

As per paper read as 1 above, the Rules, Regulation & Scheme of Diploma in Architectural Visualization forwarded by the Director, School of Distance Education to be conducted through the School of Distance Education was considered by the Board of Studies in Architecture at its meeting held on 30.07.2012 and vide item No. 4, recommended that the said Syllabus be reviewed by the curriculum development centre, Kalamassery, as the curriculum for diploma courses are prepared and decided by them.

The Board of Studies in Architecture at its meeting held on 29.10.2012, again considered the Syllabus & Regulations of the said course and approved the same with the following modifications, vide paper read as 2 above.

1. The course and curriculum is recommended for conducting through the Distance Education mode.

2. The course shall be of twelve months duration extending for a period of one year.

3. The internal mark shall be of 30% of the total marks for theory.

4, The external mark shall be 70 percent of the total marks for theory.

5. For practicals, internal and external marks shall be 50% each.

6. Faculty instructor have to be modified with 60% of the Faculty shall be of B.Arch/M.Arch specialization and the remaining 40% may be of CAD and Architectural modeling experts..

Vide paper read 3 above,the members of the Faculty of Engineering at its meeting held on

05.11.2012, vide item No. 7 considered the above Board minutes of Architecture held on 29.10.2012 and expressed their apprehensions regarding the objective, eligibility criteria, and content of the course and unanimously decided to refer back the issue to Board of Studies in Architecture with following observations:-

a) The proposed course is a practical oriented skill development course; such courses should not be conducted under Distance Education scheme. Such courses shall be conducted by approved technical institutions as a regular course.

b) As per the Clause 4.1 of the Regulations, the course can be offered to ITI/ITC, Diploma, and B.Tech. holders. Meeting disapproved with this decision as the basic knowledge in Graphics acquired by these categories of students will be entirely different.

c) Clause 4.5 considers marks of internal evaluation for classification of candidates. The mode of internal evaluation and distribution of marks is not stated for most of the subjects.

The Board of Studies in Architecture at its meeting held on 12.06.2013, vide item No. 1, again scrutinised the regulations and the Syllabus of the Diploma course in Architectural Visualisation conducted through School of Distance Education and approved the same with corrections, vide paper read as 4 above..

Vide paper read 5 above, the Faculty of Engineering at its meeting held on 24.07.2013, vide item No. 2, approved the above resolution of the Board of Studies in Architecture held on 12.06.2013, which was approved by the Academic Council at its meeting held on 30.07.2013, as per paper read as 6 above.

The Chairman, Board of Studies in Architecture, vide paper read 7 above,had forwarded a letter stating that in item No.1 of the minutes of the Board of Studies held on 12.06.2013, the Regulations & Syllabus of Diploma in Architectural Visualisation conducted through School of Distance Education be made effective with effect from 2013 admissions onwards.

Considering the matter, the Hon'ble Vice Chancellor has approved the letter of the Chairman, Board of Studies in Architecture, dt. 05.09.2013 and has accorded sanction to effect the said corrections as requested by the Chairman,vide paper read as 8 above.

Sanction has therefore been accorded for implementing the Rules ,Regulations & Syllabus of Diploma in Architectural Visualization through the School of Distance Education, University of Calicut with effect from 2013 admissions onwards (The Rules ,Regulations & Syllabus are appended)

Orders are issued accordingly.

Muhammed S
Deputy Registrar

To

The Principals of all affiliated Engineering colleges offering B.Arch course
Copy to :- PS to VC/ PA to PVC/PA to Regr/ Ex. Sn/ EG Sn/ DR- B.Tech Sn/ Dean, Faculty of Engineering/Ch'man, BOS in Architecture System Administrator (With a request to upload in the Uty website) SF

Forwarded / By Order

Section Officer

UNIVERSITY OF CALICUT

RULES , REGULATIONS AND SYLLABUS

DIPLOMA IN ARCHITECTURAL VISUALIZATION

With effect from 2013 Admissions

1. **The Need**

3D process is extremely important in professional fields and also outsourcing services like industrial, automobile, or architectural design, where 3D models often serve as prototypes for real-world products like chairs, cars, and buildings. In other situations (for instance, in some scientific applications), 3D models must be completely accurate replicas of existing physical objects. Data for these kinds of models can be obtained from 3D-imaging technologies ranging from photogrammetric to 3D scanners.

Many Company have long list of global client as Companies 3D Architectural animation services are based on the local marketing and customer's mindset. That means 3d animations *and 3D architectural Design interacts with the visitors reading their psyches so that they seem relevant and have much more remarkable results! Maximum and repeat clicks are some of the common outcomes that our clients enjoy with our 3D animation and graphic services*

To caller to this demand, there is a need to introduce a Diploma Programme to enable plus two based candidates to equip themselves in the art and craft of multimedia productions so as to secure employment in the fast growing multimedia production industry

2. **Objective**

The Programme called as Diploma in Architectural Visualization is designed to introduce students to Engineering Application of multimedia systems, tools and technologies and their application in creating Architectural Models and virtual tours. Towards this end, the programme is structured to provide a good grounding in theory and adequate practice in the core areas of Architectural production

3. **Course Duration**

The programme shall be of Twelve Months duration

4. **Eligibility for Admission**

Candidates who have secured Plus-Two or Equivalent with not less that 45% marks in aggregate shall be eligible to apply for admission to the Programme. Relaxation of 5% marks will be allowed to candidates belonging to socially and Educationally Backward Communities as referred to by Govt. of Kerala. SC/ ST candidates need to have only a pass in qualifying examinations. Those awaiting results of their qualifying examination also can apply. But such candidates will be admitted provided they produce the marks sheets of the qualifying examination on or before the date prescribed for admission.

4.1 **Admission Criteria**

Admission to the Programme shall be based on the marks secured in the qualifying examination. Candidates will be given weightage in the categories as indicate below

1	Diploma in Civil /Architecture/ Interior Design	15 Marks
2	ITI/ITC	10 Marks
3	Diploma in Computer/ IT subjects of 10 months duration or more	5 Marks
4	Certificate/ short term courses in IT / Computer subjects	3 Marks

The weightage will be given in only one of the categories, whichever is highest. To earn weightage, candidates should produce relevant certificates

4.2 **Course Requirements**

Students should attend the prescribed lecture and practical sessions without fall and should submit their assignments, practical work and projects in the prescribed mode within the deadlines. A candidate shall be permitted to appear for the final examinations only if he/she satisfies the following requirements:
(a) He/she must secure not less than 75% attendance in the total number of working hours.
(b) He/she must earn a progress certificate from the head of the institution stating that he/she has satisfactorily completed the course of study prescribed in the semester as required by these regulations

4.3 **Assessment and Examinations**

Students shall be assessed continuously through theory/ practical assignments by their faculty. There shall also be a course end University examination to be held at the notified examination Centres by the University.

4.4. **Pass Minimum**

A candidate who secures not less than 40% marks in a subject at the Final University examinations and not less than 50% of the total marks assigned to the subject, shall be declared to have passed the examination in that subject.

4.5 **Classification of successful candidates**

1. A candidate who qualifies for the diploma, passing all the subjects of the final university exam not less than 75 % marks of the aggregate total marks of all the subjects assigned to the university examinations and internal evaluation shall be declared to have passed the examination in First Class with Distinction.
2. A candidate who qualifies for the diploma, passing all the subjects of the final university exam not less than 60 % marks of the aggregate total marks of all the subjects assigned to the university examinations and internal evaluation shall be declared to have passed the examination in First Class.

3. All other successful candidates shall be declared to have passed the examination for their diploma in Second class

5.0 **Subjects of Study and Scheme of Examinations**

This Programme is dovetailed to provide a good grounding in theoretical and practical areas of multimedia. Through instructions and practical work emphasis will be laid on the basics required to work with various media using appropriate software and integrate them into multimedia products. The subjects and the scheme of assessment are as follows.

Subject of Study and Scheme of Examination

S.NO	Sub.Code	Papers	Subject	Credits	Marks			Duration of Exam
					Internal	External	Total	
1	DAV12.01		Engineering Graphics	2	30	70	100	3
2	DAV12.02		Architectural Photography	2	30	70	100	3
3	DAV12.03		Computer Graphics	2	30	70	100	3
4	DAV12.04		3D Modelling and Rendering	2	30	70	100	3
5	DAV12.05(P)		Engineering Graphics Computer Application Laboratory.	2	50	50	100	3
6	DAV12.06(P)		Computer Graphics Laboratory	2	50	50	100	3
7	DAV12.07(P)		3D Modelling and Rendering Computer Application Laboratory	2	50	50	100	3
8	DAV12.08(P)		Project	4	100	100	200	
			Total				**900**	

Question Paper Pattern

Part A : 10 questions 2 marks each (10 x 2 = 20)

Part B : 10 Short answer type questions 8 to be answered 5 marks each (8 x 5 = 40)

Part C : Six essay type questions 4 to be answered 10 marks each (4 x 10 = 40)

1. Centers approved by the University for the Conduct of the Programme through distance education mode, are to arrange for six contact sessions, each session devoted to one paper in the order as listed in the Subjects of Study and scheme of Examination

in one contact session, the prescribed lectures and practices of one paper should *be* completed. Each contact sessions should spread across a minimum of 30 days or so in order to enable students to understand the subject and learn the skills at a leisured pace.

2. The Faculty of the approved Centre should give the prescribed number of (1) Take- home Assignments in papers I-IV and (2) Practical Work Assignments in each of the papers 5, 6, and 7. The Take Home Assignments should be of theoretical nature to assess students understanding of the concepts dealt under various topics of the papers. And the Practical Assignments should gauge student's ability to carry out tasks involved in the creation of multimedia products.

   The deadline for the submission of Take- Home Assignments and Practical work Assignments should be before the beginning of the contact session for the next paper. Every Student should submit the Take- home assignments of each paper in a record book within the prescribed deadline. The Practical Work Assignments should be submitted in CDs/DVDs.
   The assignments should be valued by the faculty. The maximum marks for each assignment could be 25. A consolidated marks sheet in respect of the Take- home Assignments and Practical Work Assignments showing the marks of each of the students should be prepared and prescribed to the University within the prescribed date.

   The assignment, record book and practical work CDs, DVDs should be made available to the external examiners for verification.

   There shall be a final examination to be conducted by the University in both the practical and theory areas as per the Subjects of Study and Scheme of Examination. The examination shall be conducted at the Centers notified by the University for the purpose. External examiners appointed for the purpose by the University will conduct practical examination and evaluate the practical.

   For paper DAV12.08 - Projects, there should two contact sessions- Project Approval Sessions and mid project session. Proposals for Project 1 and 2 should be approved in the first session. The second session is meant to monitor the progress of project work. Students should be encouraged to work on their project proposals during the contact session for paper DAV12.O4. They should work on the approved project and submit the projects in CD format.

   The projects are to be evaluated by two external examiners appointed by the University for the purpose.

SYLLABUS

PAPER I. DAV 12.01 ENGINEERING GRAPHICS

Unit 1
Introduction to Graphics, Lines Lettering and Dimensioning, Geometrical Constructions, Scales, conic sections, Various Curves

Unit 2
Theory of Projections, Projection of Points, first angle projection, Projection of Straight lines, Projection of plains, projection of solids, section of Solids Orthographic projection

Unit 3
Isometric projection, isometric view: planes, prism, cylinder, pyramid, Cones, Sphere, isometric from orthographic projection, Perspective projection: visual ray method and Vanishing point method

Unit 4
Introduction to the AutoCAD and hardware, Windows environment, template file, toggles Drawing Commands, Edit Commands, View Commands, Drawing Settings and Aids, Assist Commands, Orthographic and Isometric Drawings, Plan and Elevation, Modeling and Editing tools

Take - home Assignments: Two in each of the four units.

PAPER II. DAV12.02 ARCHITECTURAL PHOTOGRAPHY

Unit 1
Brief history of photography and architectural photography, enhancing the aesthetics of architecture through photography, international nature of contemporary architecture, photo- finishing and editing of digital images, standards for presentation, sources of photo-finishing services, available computers, scanners, and editing programs

Unit 2
Fundamental aspects of camera function; optics, control of exposure, recording medium, introduction to measuring exposure, Types of camera, Characteristics of lenses- Focal length and angle of view , normal lens, telephoto lens, wide-angle lens, zoom lens, other types , macro-lens , enlarging lens, perspective-control lens, Optical characteristics; light gathering ability- maximum aperture, shutter speed and camera shake; resolution and distortion,
aberrations, format size and enlargement, effects of recording medium; depth of field-effect of aperture diameter

Unit 3

External lighting- Direction of lighting- front lighting, side lighting, back lighting, shadows, texture, and effects of clouds, measuring exposure, lens flare; Diffusivity of lighting- contrast, psychological effects, using sun-finder charts, Optimum angles for sunlight, color temperature, use of filters for black-and-white photography

Unit 4

Interiors- composition: symmetric composition, applying the law of thirds, perspective Lenses: distortions produced by wide-angle lenses, determining depth of field; lighting: types of lighting and their characteristics, daylight, tungsten, fluorescent, flash, mixed: white- point setting on digital cameras, filters and multiple exposures, measuring exposure

Take- home Assignments: one in each of the four units.

PAPER III DAV 1.3 COMPUTER GRAPHICS

Unit 1

2D imaging, 2D painting and drawing, Art foundations or digital media in general foundations, Digital arts foundations, specific to digital arts majors, Graphic and Web art, Virtual environments, Concept development, Computer graphics history, Theory and criticism in computer art, Cross media (digital and traditional),

Unit 2

Digital landscaping, objects scaling, light effects, shadow and shade, image editing, texture making, pattern making, canvas and resolutions, image formats, Printing, Computer graphics in traditional painting and drawing, Computer graphics in printmaking,

Unit 3

Introduction to Video Editing software- there features and Characteristics, importing and organizing video clips; timeline tools; Clips; trimming; Batch Capturing; Capturing With and without device control

Unit 4

Video Editing Techniques; Transition device/effects; using videos and audio channels; muting/swaping channels; titling techniques; compositing; animating clip(s), motion settings; Alpha channel and colour option; video effects; rendering; recording project and videotapes; other video editing software's

Take- home Assignments: one in each of the four units.

PAPER IV. DAV 1.3 MODELLING AND RENDERING

Unit 1

Modeling Principles: reference, proportion, exaggeration, weight, detail, functionality, Basic Modeling Concepts , Intro to 3D space/ Coordinate Systems, Geometric Primitives , Shading and Surface Characteristics , Surfacing & Shading Techniques, Surface Shaders, Surface Reflectivity, Surface Color, Surface Texture, Surface Transparency, Splines/ Shapes/ Text/ Extrude/ BevelBasi, Sweeping , Lathe, Boolean, Loft,

Unit 2

Advanced Modeling Techniques : Logical Operators & Trimmed Surfaces , Environment Building, Subdivision Surfaces , Lecture: Non-organic Patch modeling, Organic Patch Modeling, Edge-loop modeling, model from, Standard dimensions for architecture, 3d model from 2d drawing , Various measurement tools, blue prints

Unit 3

Lighting : Basic Lighting , Environment & Bounced light, Lecture: Basic Lighting , advanced Lighting, 3 Point Lighting, Weight-Maps/ Surface layers, Global Illumination & Radiositiy, Shading and Surface Characteristics , Image Mapping , Environment-Dependent Shading, Rendering Hacks, Getting Ready, UV Mapping/ Array, The Digital Production Process

Unit 4

Rendering Concepts, techniques, plug-ins for rendering, Composing rendered outputs for final presentation, Adding effects to final output, Rendering multiple cameras, Ulead Photoimpact, User interface of ulead photoimpact, Opening images, Selection methods, Crapping methods,

opying, layer and layer management, composing images, Color balancing, Image corrections, Output technique , resolution setting, Stills making, walk through and Fly-Through, visual Effects

Take- home Assignments: one in each of the four units.

DAV 12.05 (P) ENGINEERING GRAPHICS COMPUTER APPLICATION LABORATORY

Software: AutoCAD

Practical:

1) Orthographic drawing- Plan, Elevation, and Side views of house, shopping complex and more using software AutoCAD

DAV12.06 (P) COMPUTER GRAPHICS LABORATORY

Software: Photoshop and Adobe Premiere

Practical:

1. Making/ Importing and manipulating bitmap images/ graphics using software (Photoshop),

Texture and pattern making, landscaping plans

2. Using layers /fillers / Channels to collate/ combine images; capture and assemble video using software (Adobe Premier / avid) and mix audio.

DAV12.07 (P) 3D MODELLING AND RENDERING COMPUTER APPLICATION LABORATORY

Software: 3Ds max
Practical:

1. Furniture modeling using software 3Ds max
2. Exterior and Interior modeling using software 3Ds max
3. Rendering various image and video formats using software 3Ds max and V- ray

DAV12.08(P) PROJECT

Each student has to complete the Visualization Project at the end of the course and submit the completed Project report signed by the guide to the department. The final University examination will be Viva voice of the Project work and entire course work.

Suggested Readings

Les Meehan	: Creative Photoshop Landscape Techniques Publisher -Lark Books, 2006
Bradley Cantrell, Wes Michaels	:Digital Drawing for Landscape Architecture: ContemporaryTechniques and Tools for Digital Representation in SiteDesign Publisher-John Wiley and Sons, 2010
Steven E. Browne	: Video editing: a postproduction primer Publisher - Focal press 1997
Brian L Smith	: 3Ds Max Architectural Visualization Publisher -Dreamtech Press, 2007
Markus Kuhlo and Enrico Eggert	: Architectural Rendering with 3ds max and V-ray Publisher- Focal Press, 2010
David S. Cohn	: Complete AutoCAD Publisher -Addison-Wesley, 1991
Nelson Johnson	: AutoCAD: the complete reference Publisher -Osborne McGraw-Hill, 1991
James d Foley Andries van dam	: Computer Graphics: Principles and Practice
Howard baker PM	: computer Graphics- Prentice Hall india
Geri Murphy	: Camera Basic Equipment case
Adrian Schulz	: Architectural Photography Publisher-O'Reilly Media, Inc., 2009
David Wilson	: Photographing buildings

Publisher _RotoVision, 2001

Norman McGrath : Photographing buildings inside and out
Publisher -Whitney Library of Design, 1987

John Clement : comprehensive guide to digital landscape Photography-
AVA publishing SA, Switzerland

Gary H Anderso : video editing and production

Steven E. Browne : Video editing: a postproduction primer
Publisher - Focal press 1997

Brian L Smith : 3Ds Max Architectural Visualization
Publisher -Dreamtech Press, 2007

Markus Kuhlo and Enrico Eggert : Architectural Rendering with 3ds max and V-ray
Publisher- Focal Press, 2010