Shri Vaishnav Institute of Architecture

B. Des in Graphics and Animation

BDNGA401 – 2D Game Design

		TEACHING & EVALUATION SCHEME								
		THEORY			PRAC	ГICAL	L	Т	S	CRED ITS
COURSE CODE	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BDNGA401	2D Game Design				100	100			5	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):-

CEO 1	To develop the game design skills required for game production.
CEO 2	This course will create the understanding of game design process

Course Outcomes (COs)

CO1	To develop the understanding of the game design process.
CO2	To visualize, understand and digitalize the game according to the project
CO3	To make students develop and execute the game design from initialto finalized

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		TEACHING & EVALUATION SCHEME								
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COURSE CODE	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BDNGA401	2D Game Design				100	100			5	5

Course Contents/Syllabus

<u>Unit-I</u>

Introduction to Game Design, Fundamentals of Game Design, Principle of Game Design.

<u>Unit-II</u>

Game Idea Visualization and Story Telling, Perspective Drawing for layout, Scene Planning - Camera moves and Pans, Interior study. Interior Color, Perspective Drawing for layout - Projection/ InclinedPlanes.

<u>Unit-III</u>

Game Development and Documentation, Composition, Composing, Path of Action, Principles of reuse. Analysis of story development.

<u>Unit- IV</u>

Game Production Planning and Design.

<u>Unit- V</u>

Game Mechanics, Quality Assurance for Games.

REFERENCE BOOKS

- 1. Jesse Schell The Art of Game Design, 2008
- 2. Raph Koster A Theory of Fun for Game Design, 2004
- 3. Ernest W. Adams Fundamentals of Game Design, 2006
- 4. Rogers Scott Level Up! The Guide to Great Video Game Design, 2010

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BDNGA402 – 3-Dimensional Modeling - I

		TEACHING & EVALUATION SCHEME									
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COURSE CODE	COURSE NAME	END SEM University Exam	1 wo 1 erm Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*					
BDNGA402	3-Dimensional Modeling- I				100	100			4	4	

 $\label{eq:Legends: L-Lecture; T-Tutorial/Teacher Guided Student Activity; P-Practical; C-Credit;$

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):-

CEO 1	To develop abilities in 3D Modeling in the context of project
	requirements .To enhance the understanding of the complexities of
	Modeling design process for production needs and develop creative artworks
	for projects.
CEO 2	This course is intended to provide skills for 3D Modeling.

Course Outcomes (COs)

CO1	To develop understanding of the 3D Modeling process.
CO2	To visualize & create real world object in 3D.
СО3	A solid understanding of the principles and practice of 3D modeling.

Course Contents/Syllabus

<u>Unit-I</u>

Introduction & Overview of 3D Modeling, Definition of Modeling, Understanding 3D space, Coordinate system (XYZ Axis), 3D Modeling production pipeline, About 3D Modeling software, Introduction to Autodesk Maya, Exploring Maya user interface, Navigation four views,

<u>Unit-II</u>

Working and creating basic objects in Maya, Selection and Manipulating object inside Maya. Understanding Tool Setting, Channel Box & Layer Editor, Working with Attribute Editor, Exploring File & Edit Menus, Basic Transformation, Brief overview – NURBS, Polygon.

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		TEACHING & EVALUATION SCHEME								
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BDNGA402	3-Dimensional Modeling- I			100	100			4	4	

<u>Unit-III</u>

Understanding & working with NURBS Geometry, Creating model by using NURBS Geometries & Working with Curve and Splines, Creating models by using Revolve & Extrude Tools, Modeling Watch by using NURBS & Curve Object.

<u>Unit-IV</u>

Understanding & working with Polygon Geometry, Understanding Topology and Edge Flow, Creating & Edit models by using Polygon Objects, Adding Division, Exploring Edit Mesh Menu inside Maya (Adding Division, Bevel, Bridge, Extrude, Merging Vertices, Attach/Detach components, Duplicate & Extract Faces), Working with Boolean. Model Cartoon House, Gaming Weapons.

Unit-V

Understanding & Creating Props Modeling for Games, Film and TVC. Model conceptualization weapon for Games, Model Assets for Interior, Architectural Modeling (Interior & Exterior), Set Design for Film and Game.

Reference Books:-

- 1. 3D Modeling for Beginners: Learn Everything You Need to Know about 3D Modeling!
- 2. Autodesk Maya 2023 Basics Guide: Kelly L. Murdock
- 3. Digital Modeling: William Vaughan
- 4. Getting Started in 3D with Maya : Adam Watkins

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BDNGA403 – **UI/UX Projects**

		TEACHING & EVALUATION SCHEME								
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COURSE CODE	COURSE NAME	END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BDNGA403	UI/UX Projects				100	100			4	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs) :-

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CEO 1	To understand projects and its commercial value.
CEO 2	It will help to explore the process, techniques and execution of UI/UX design.

Course Outcomes (COs)

CO1	To develop creative conceptual visualization, hand skill building, and the process of design.
CO2	To create creative concept and visualize the same for effective UI/UX Design
CO3	To explore and create spatial design with respect to different genres.

Course Contents/Syllabus

A project is a type of assignment, typically involving research or design that is carefully planned to achieve a specific objective. A series of tasks that need to be completed to reach a specific outcome. Project can also be defined as a set of inputs and outputs required to achieve a particular goal. Projects can range from simple to complex and can be managed by one person or a hundred.

Gain practical experience by working on real-world projects, building a robust portfolio that will impress potential employers.

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		TEACHING & EVALUATION SCHEME								
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BDNGA403	UI/UX Projects			100	100			4	4	

<u>UNIT I</u> – Research & Case Study

A case study is an in-depth, detailed examination of a particular case within a real-world context. An in-depth research design that primarily uses a qualitative methodology but sometimes includes quantitative methodology. Used to examine an identifiable problem confirmed through research. Used to investigate an individual, group of people, organization, or event.

<u>UNIT</u>II – Redesign Mobile App

Mobile app redesign is the process of improving the look and feel of an existing mobile application to create a more engaging and user-friendly experience. In other words, it involves examining the current design of the app and identifying areas for improvement based on user experience.

<u>UNIT III</u> – Redesign Website

A website redesign is a high-level overhaul that involves significantly changing elements like the design, content, structure, and visuals of your current website to better serve your visitors. A great website redesign tends to boost revenue, lower bounce rates, and improve user experience (UX).

<u>UNIT</u> IV – Ideation & Concept for UI/UX Projects

Ideation involves a wide range of activities, including brainstorming, problem-solving, and concept development. During the ideation process, the UX designer or team generates several design ideas which are then filtered down to the best, most practical or innovative solutions.

<u>UNIT V</u> – Final Layout, Mockups and Submission

Creating final layout for the UI/UX design, Creating Mockups for different Platforms, Review and submission of final projects.

Reference Books:-

- 1. Refactoring UI: UX designers who want to be good at UI, Author Wathan and Schoger.
- 2. A Project Guide to UX Design: For user experience designers(2nd. ed.).
- **3.** User Friendly: How the Hidden Rules of Design Are Changing the Way We Live, Work, and Play. Authors: Cliff Kuang, Robert Fabricant.

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BDNGA404 – Texturing & Lighting

		TEACHING & EVALUATION SCHEME								
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BDNGA404	Texturing & Lighting					100			2	2

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):-

CEO 1	To develop skills required for Texturing & Lighting.
CEO 2	Students able to create descriptive, detailed and interesting textures & lighting.

Course Outcomes (COs)

C01	To develop understanding of the Look Development Process.
CO2	To develop Understand fundamentals of how 3D lighting works in a professional production setting.
СОЗ	To make understand the different type of texture style and lighting techniques

Course Contents/Syllabus

<u>Unit I</u>

Introduction to Shaders, Definition of Texturing, and understanding texture coordinates UVW, Explore material window (Hypershade Window) in Maya. Create and assign texture or material on objects, Mapping Techniques (Planner Mapping, Cylindrical Mapping, Automatic Mapping, and Spherical Mapping). Working with procedural texture (2D&3D Texture)

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		TEACHING & EVALUATION SCHEME								
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BDNGA404	Texturing & Lighting					100			2	2

<u>Unit II</u>

Working with UV panel, Exploring Unwrapping Techniques, Working with Standard Shaders (Lambert, Blin, Phong, Layer Shader, Surface Shader etc.) Working with UV layouts, exporting UV's. Creating different UV Maps in Photoshop.

<u>Unit III</u>

Texturing with Adobe Substance Painter, Advanced shading with Arnold and Vray shaders, Working with physical shaders, Creating different type of shaders (Ceramic, Chrome, Metal, Glass, Fabric, Wooden etc.) for Models. Creating Texture for Game Assets and Props.

<u>Unit IV</u>

Introduction to 3D Lighting, Creating and understanding cinematic lighting techniques, Working with standard lights in Maya (Point, Direct, Spot, Area, Volume lights etc.), Exploring lighting properties. Understanding studio lighting (3 Point Light Setup) Working with different types of Shadows and rendering them.

<u>Unit V</u>

Working with physical lights, advanced lighting with Arnold and Vray. Understanding direct & indirect illumination, Exploring Global Illumination, Lighting a Interior & Exterior Scene with Arnold & Vray, Creating Day & Night lights. Explore rendering techniques & render passes, Compositing render pass.

REFERENCE BOOKS

- 1. Darren Brooker Essential CG Lighting Techniques
- 2. Luke Aheam Textures, Shaders, and Materials for Artist.
- 3. Lee Lanier Aesthetic 3D Lighting
- 4. Horst Sondermann Lights Shadow Space
- 5. Luke Ahearn 3D Game Texture

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BDNGA 405 – Compositing - I

		TEACHING & EVALUATION SCHEME								
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BDNGA405	Compositing - I				50	50			3	3

 $\label{eq:Legends: L-Lecture; T-Tutorial/Teacher Guided Student Activity; P-Practical; C-Credit;$

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):-

CEO 1	To introduce the concept and process of Motion Design & Compositing.
CEO 2	This course is intended to provide skills for Motion Graphics & Compositing.

Course Outcomes (COs)

C01	To can create visually appealing and effective Motion Graphics Designs.
CO2	To develop creative conceptual visualization and the process of Animation for Motion Design & Compositing.
CO3	To make students understand the roles and responsibilities of Motion Designers.

Course Contents/Syllabus

<u>Unit I</u>

Introduction to Compositing & Motion Graphics, Software used for Vfx, Node Based and Layer Based compositing, Get started with Adobe After Effect, Fundamental of Motion Graphics Understanding user interface and layout in after effect, Customized user interface, Exploring preference panel, Creating Project, Exploring project settings.

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		TEACHING & EVALUATION SCHEME									
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BDNGA405	Compositing - I				50	50			3	3	

<u>Unit II</u>

Creating first composition in after effect, exploring composition setting, Frame rate, Resolution, Importing images & footages, Understanding Project, Composition & Timeline Panel, Adding assets in timeline, Exploring layer properties, Dive into Animation using Keyframes and Graph Editors. Exploring layer menu in after effect

<u>Unit III</u>

Working with different types of layer (Solid, Shape etc.), Exploring shape layer properties, Enhance Compositions with Blending Modes, Understand Mask Creation and Application, Explore Track Mattes and Luma/Alpha Channels, Create spaceship HUD UI by using shape layer, Create growing vine animation, Create rain animation by using shape layer. Create ball animation. Vehicle Animation, Working with transition in after effect.

<u>Unit IV</u>

Exploring Text Layer in after effect, working with text layer properties, Understanding Typography techniques, Title animation, Creating Cinematic Titles Animation for Film and Game, Exploring Effect menu and working with different types of effect. Create logo animation. Create animated Instagram Stories for social media marketing, Promotion animated ads for E-commerce website.

<u>Unit V</u>

Exploring 3D Layer, Camera & Light layer in after effect, Learn the basics of 3D in motion graphics, including depth and spatial relationships, Create Parallax Effect by using 3d layer and camera layer, Understand how cameras and lights influence a 3D space and its visual output, Experiment with multiplane Compositing – Dive into the technique of layering 2D images in 3D space for a sense of depth. Working with Particles tools, Exploring plugins for after effect, working with 3D object in after effect, Creating Explainer Video, Color Grading & Color Correction, Rendering & Media Encoding.

REFERENCE BOOKS

- 1. Austin Shaw Design for Motion
- 2. Ian Crook, Peter Beare Motion Graphics
- 3. Trish Meyer, Chris Meyer After Effect Apprentice
- 4. Vishu Aggarwal Creative Motion Mastery with Adobe After Effect

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SUBJECT CODE	CATEGOR Y	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
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ML-307	Compulsory	Environmental Management and Sustainability	60	, 20	20	0	0	4	0	0	d.

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P - Practical: C - Credit:

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Course Objective ,

- 1. To create awareness towards various environmental problems.
- 2. To create awareness among students towards issues of sustainable development.
- 3. To expose students towards environment friendly practices of organizations.
- 4. To sensitize students to act responsibly towards environment.

Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

Course Outcomes

- The course will give students an overview of various environmental concerns and practical challenges in environmental management and sustainability.
- 2. Emphasis is given to make students practice environment friendly behavior in day-to-day activities.

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COURSE CONTENT

- Unit 1: Introduction to Environment Pollution and Control
 - 1. Pollution and its types (Air, Water, and Soil): Causes. Effects and Control measures
 - 2. Municipal Solid Waste: Definition, Composition, Effects
 - 3. Electronic Waste: Definition, Composition, Effects
 - 4. Plastic Pollution: Causes, Effects and Control Measures

Unit II: Climate Change and Environmental Challenges

- 1. Global Warming and Green House Effect
- 2. Depletion of the Ozone Layer
- 3. Acid Rain
- 4. Nuclear Hazards

Unit III: Environmental Management and Sustainable Development

- 1. Environmental Management and Sustainable Development: An overview
- 2. Sustainable Development Goals (17 SDGs)
- 3. Significance of Sustainable Development
- 4. Environment Friendly Practices At Workplace and Home (Three Rs' of Waste Management, Water Conservation, Energy Conservation)

Unit 1V: Environmental Acts

- 1. The Water (Prevention and Control of Pollution) Act, 1974: Objectives. Definition of Pollution under this act, Powers and Functions of Boards
- 2. The Air (Prevention and Control of Pollution) Act, 1981:Objectives, Definition of Pollution under this act, Powers and Functions of Boards
- 3. The Environment (Protection) Act, 1986: Objectives, Definition of important terms used in this Act. Details about the act.
- 4. Environmental Impact Assessment: Concept and Benefits

Unit V:Role of Individuals, Corporate and Society

- 1. Environmental Values
- Positive and Adverse Impact of Technological Developments on Society and Environment
- 3. Role of an individual/ Corporate/ Society in environmental conservation
- 4. Case Studies: The Bhopal Gas Tragedy, New Delhi's Air Pollution, Arsenic Pollution in Ground Water (West Bengal), Narmada Valley Project, Cauvery Water Dispute, Fukushima Dailchi Disaster (Japan), Ozone Hole over Antarctica, Ganga Pollution, Deterioration of Taj Mahal, Uttarakhand flash floods

Suggested Readings:

- 1. Rogers, P.P., Jalal, K.F., Boyd, J.A.(Latest Edition). An Introduction to Sustainable Development, Earthscan
- 2. Kalam, A.P.J. (Latest Edition) . Target 3 Billon: Innovative Solutions Towards Sustainable Development. Penguin Books
 - 3. Kaushik , A. and Kaushik (Latest Edition). Perspectives in Environmental Studies. New Delhi: New Age International Publishers.
- 4. Dhameja, S.K. (Latest Edition). Environmental Studies. S.K. Kataria and Sons.New Delhi
- 5. Bharucha, E. (Latest Edition). Environmental Studies for Undergraduate Courses. New Delhi: University Grants Commission.
- 6. Wright, R. T. (Latest Edition). Environmental Science: towards a sustainable future .New Delhi: PIIL Learning Private Ltd.
- 7. Rajagopalan, R. (Latest Edition). Environmental Studies. New York: Oxford University Press.

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