BEIT802T **GAMING ARCHITECTURE AND PROGRAMMING**

(Theory Credit: 05)

Teaching Scheme:	**Examination Scheme:**
Lecture: 4 Hours/week	**Theory: T (U): 80 Marks T (I): 20 Marks**
Tutorial: 1 Hour/week	**Duration of University Exam. : 03 Hours**

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UNIT I:

Core Design: What Is a Game? Games Aren't Everything. Games Mean Gameplay. Creating the Game Spec. Example Game Spec, Initial Design: The Beginning. Hardware Abstraction. The Problem Domain. Thinking in Tokens.

UNIT II:

Use of Technology: The State of the Art. Blue-Sky Research. Reinventing the Wheel. Use of Object Technology, Building Bricks: Reusability in Software, Initial Architecture Design: The Birth of Architecture. The Tier System. Architecture Design.

UNIT III:

Development: The Development Process. Code Quality. Coding Priorities. Debugging and Module Completion. The Seven Golden Gambits. The Three Lead Balloons. GAME PROGRAMMING: Technologies: Display, Mixing 2D and 3D, DirectX, User Interface code, Resource caching, the main loop.

UNIT IV:

Design Practices: Smart & naked pointers, using memory correctly, Game scripting languages, Building your game: Creating a project, source code repositories and version control, Building the game and scripts, User interface programming and input devices: Getting the Device State, Working with the Mouse (and Joystick), Working with the Keyboard, User Interface Components, More Control Properties.

UNIT V:

2D Drawing and DirectX:

2D Drawing and DirectX, Basic 2D Drawing Concepts, Drawing Text, Working with Sprites, Graphics File Formats, Initialization and the Main Loop: Initialization, Some C++ Initialization Pitfalls, Initializing your Game, the Main Loop, Stick the Landing: A Nice Clean Exit.

UNIT VI:

Loading and Caching Game Resources:

Art and Sound Formats, Resource Files, Data Compression, IPac: A Resource File Builder, the Resource Cache, World Design and Cache Prediction, 3D Graphics and 3D Engines: 3D Graphics Pipeline, Setting Up a Project, Using a Scene Graph, 3D Middleware Review, Rolling Your Own 3D Engine.

Text Books:

1. Game Architecture and Programming, Shankarmani, Jain, Sinha, Wiley Publication, India
2. Fundamentals of Game Design, 3rd Edition, Ernest Adams, Pearson Publication

Reference Books:

1. Game Theory: An Introduction, E. N. Barron, Wiley Student Edition.
2. ActionScript 3.0 Game Programming University, 2nd Edition, Gary Rosenzweig, Pearson Education.
3. "Game Architecture and Design", Andrew Rollings and Dave Morris
4. "Professional Game Programming" Mike McShaffry, Dreamtech Press.

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