COURSE CODE	COURSE TITLE	L	T	P	C
1152IT137	GAME THEORY	3	0	0	3

Course Category:

~~Foundation (0)/ Program Core (1)~~**/ Program Elective (2)** / ~~Allied Elective (3) / University Elective (4) / Value Education Elective (5) / Independent Learning (6) / Industry - Higher Learning Institute Interaction (7)~~

a.Preamble:

This course focused on

b.**Pre-requisites:**

- NIL

c.Link to Other Courses:

- Computer Graphics

d.Course Educational Objectives:

- To familiarize with the process of game design and development
- To learn the processes, mechanics, issues in game design
- To understand the architecture of game programming
- To know about game engine development, modeling, techniques and frameworks

e.Course Outcomes:

Students undergoing this course are able to:

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
CO1	Develop game programming skills in various gaming models.	K3
CO2	To create interactive games	K3
CO3	Do a literature survey on applications of Game Theory in Computer Science and Engineering.	K3

g.Syllabus Content:

UNIT I INTRODUCTION **9**

Elements of Game Play – Artificial Intelligence – Getting Input from the Player - Sprite Programming – Sprite Animation - Multithreading – Importance of Game Design – Game Loop.

UNIT II 3D GRAPHICS FOR GAME PROGRAMMING 9

Coordinate Systems, Ray Tracing, Modeling in Game Production, Vertex Processing, Rasterization, Fragment Processing and Output Merging, Illumination and Shaders, Parametric Curves and Surfaces.

UNIT III GAME DESIGN PRINCIPLES 9

Character Development, Story Telling, Narration, Game Balancing, Core mechanics, Principles of level design, Genres of Games, Collision Detection, Game Logic, Game AI, Path Finding, Case study : Tetris.

UNIT IV GAMING ENGINE DESIGN 9

Renderers, Software Rendering, Hardware Rendering, and Controller Based Animation, Spatial Sorting, Level of Detail, Collision Detection, Standard Objects, and Physics, Case study : The Sims

UNIT V GAME DEVELOPMENT 9

Developing 2D and 3D Interactive Games Using OpenGL, DirectX – Isometric and Tile Based Games, Puzzle Games, Single Player Games, Multi-Player Games. Case study: Mine craft.

1. Learning Resources

i. Text Book:

1.David H. Eberly, "3D Game Engine Design, Second Edition: A Practical Approach to Real-Time Computer Graphics" Morgan Kaufmann, 2 Edition, 2006.

2. JungHyun Han, "3D Graphics for Game Programming", Chapman and Hall/CRC, 1st edition, 2011.

ii.References

1.Mike McShaffrfy, "Game Coding Complete", Third Edition, Charles River Media, 2009.

2.Jonathan S. Harbour, "Beginning Game Programming", Course Technology PTR, 3 edition, 2009.