Diploma, Anna University-UG, PG., HSC & SSLC

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Syllabus
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MC5013 GAME PROGRAMMING

DETAILED SYLLABUS

OBJECTIVES

- To get subsequent understanding of game design and development, which includes the processes, mechanics, issues in game design, game engine development, modeling, techniques, handling situations, and logic.
- To create interactive games

UNIT I GRAPHICS FOR GAME PROGRAMMING

Coordinate Systems, Ray Tracing, Modeling in Game Production, Vertex Processing, Rasterization, Fragment Processing and Output Merging, Illumination and Shaders, Parametric Curves and Surfaces, Shader Models, Image Texturing, Bump Mapping, Advanced Texturing, Character Animation, Physics-based Simulation.

UNIT II GAME DESIGN PRINCIPLES

Game Logic, Game AI, Path Finding, Game Theory, Character development, Story Telling, Narration, Game Balancing, Core mechanics, Principles of level design, Genres of Games, Collision Detection.

UNIT III GAMING ENGINE DESIGN

Renderers, Software Rendering, Hardware Rendering, and Controller based animation, Spatial Sorting, Level of detail, collision detection, standard objects, and physics.

UNIT IV GAMING PLATFORMS AND FRAMEWORKS

Flash, DirectX, OpenGL, Java, Python, XNA with Visual Studio, Mobile Gaming for the Android, iOS, Game engines - Adventure Game Studio, DX Studio, Unity.

UNIT V GAME DEVELOPMENT

Developing 2D and 3D interactive games using OpenGL, DirectX – Isometric and Tile Based Games, Puzzle games, Single Player games, Multi Player games.

REFERENCES

1. Andy Harris, "Beginning Flash Game Programming For Dummies", For Dummies; Updated Edition, 2005.

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

3. Dino Dini, "Essential 3D Game Programming", Morgan Kaufmann, 1st Edition, 2012

4. Ernest Adams and Andrew Rollings, "Fundamentals of Game Design", Prentice Hall 1st Edition,2006

5. Eric Lengyel, "Mathematics for 3D Game Programming and Computer Graphics", 3rd Edition, Course Technology PTR, 2011

6. Jason Gregory, "Game Engine Architecture", A K Peters, 2009.

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

8. Mike McShaffrfy, "Game Coding Complete", 3rd Edition, Charles River Media, 2009.

9. Jonathan S. Harbour, "Beginning Game Programming", Course Technology PTR, 3rd Edition, 2009

10. Jeannie Novak, "Game Development Essentials", 3rd Edition, Delmar Cengage Learning, 2011.

11. John Hattan, "Beginning Game Programming: A GameDev.net Collection", Course Technology PTR, 1st Edition, 2009

12. Jim Thompson, Barnaby Berbank-Green, and Nic Cusworth, "Game Design: Principles, Practice, and Techniques - The Ultimate Guide for the Aspiring Game Designer", 1st Edition, Wiley, 2007.

13. Roger E. Pedersen, "Game Design Foundations", Edition 2, Jones & Bartlett Learning, 2009.

14. Scott Rogers, "Level Up!: The Guide to Great Video Game Design", Wiley, 1st Edition, 2010.