Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly West Bengal University of Technology)
Syllabus for B. Sc. In Gaming
(Effective for Academic Session 2019-2020)

<u>**SEMESTER-IV**</u>

Paper: Introduction to 3D Play Station Game Programming
Code: BGD – 401
Contacts Hours / Week: 3T
Credits: 3

Units	Course Content
Unit 1	Procedural programming in game development, what are 3D playstation , future of PS based games, Engine programming. Game loop, Creating the player, controller programming.
Unit 2	Applications Algorithms & Trees 3D character code & texture, PlayStation Mobile, Playstation 3 SDK, Playstation 3 Devkits, API Documentation , Running programs, APP HOME

Suggested Readings:

1. https://research.ncl.ac.uk/game/mastersdegree/workshops/ps3introduction/Tutorial0.pdf

Paper: Networking in Game Development
Code: BGD – 402
Contacts Hours / Week: 3T
Credits: 3

Units	Course Content
Unit 1	Networking intro & JSON, Creating non-Unity C#. applications Web server basics, Deploying web servers Creating a RESTful, Connecting games to services Databases along with Multiplayer gaming.
Unit 2	Peer-to-peer networking, Client-server networking, Networking protocols – UDP and TCP, game client, game server code, game socket programming.

Suggested Readings:

1. https://www.youtube.com/watch?v=4yzsVLhN4FQ
2. https://www.youtube.com/watch?v=1RphLzpQiJY
3. Multiplayer Game Programming: Architecting Networked Games, by Sanjay Madhav, Josh Glazer Publisher: Addison-Wesley Professional

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Paper: Introduction to Helper Systems
Code: BGD – 403
Contacts Hours / Week: 2T+1P
Credits: 3

Units	Course Content
Unit 1	Common Helper Functionality - Localization • Test/Tuning Support • Tracking User Statistics • Recording Play Sessions
Unit 2	Advanced Features • Event System Optimization • Custom Memory Allocation • Resource Management (Block Loading, Instancing) Streaming Technology • Save/Load
Suggested Readings:	

Paper: Hardware in Game Programming
Code: BGD – 404
Contacts Hours / Week: 2T+1P
Credits: 3

Units	Course Content
Unit 1	Know your CPU – game CPU & GPU, need of graphics cards, load balance, hardware for high-end games. Memory as a bottleneck Multiprocessor systems Trend: Higher percentage of silicon on the CPU dedicated to cache rather than branch Prediction, GPUs – parts features Other auxiliary processors – physics, sound, network
Unit 2	Advanced Features User Interface, Systems Design, Requirements of a user interface, Basic Implementation. Considerations of streaming, Style and type of streaming.

Suggested Readings:

1. https://www.pcgamer.com/game-development-pc/
2. http://index-of.co.uk/Algorithms/Core%20Techniques%20and%20Algorithms%20in%20Game%20Programming.pdf

Paper: Project and Team in Game Development
Code: BGD – 405
Contacts Hours / Week: 2T+1P
Credits: 3

Units	Course Content
Unit 1	"Team Structures" "Stages of Development" (particularly: how to make a project plan)- Planning the agile way, Avoid multitasking.
Unit 2	Iterative Development, Backlog, Notifications, Data Customization, Activity Logs, Production Formula.

Suggested Readings:

1. https://www.pcgamer.com/game-development-pc/
2. http://index-of.co.uk/Algorithms/Core%20Techniques%20and%20Algorithms%20in%20Game%20Programming.pdf

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Paper: Introduction to RPG Game
Code: BGD – 491
Contacts Hours / Week: 1T+2P
Credits: 3

Units	Course Content
Unit 1	Scene graph, Particles, Overview of Shaders, Intro to 3D RPG games, type of RPG games. Character design, object design, environment design, level design, UI treatment.
Unit 2	Character movement, animation for RPG, making library controls for RPG, character animation and bones for RPG. Game client for RPG, RPG server code.

Suggested Readings:

1. Multiplayer Game Programming: Architecting Networked Games, by Sanjay Madhav, Josh Glazer Publisher: Addison-Wesley Professional

Internship & Lab Making (Making of Full Length FPS 3D Game)
Code: BGD – 492
Contacts Hours / Week: 3P
Credits: 3

Students are required to make a full-length FPS 3D Game.