Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus

Course Code: CS443	**Course Title:** Game Programming	**Classification:**	**Coordinator's Name:** Dr. Essam Elfakharany **Lecturer Name:**	**Credit Hours:** 3
Pre-requisites: • CS243 (Object-oriented Programming) • CS352 (Computer Graphics)	**Co-requisites:** None	**Schedule:** Lecture: 2 hours Tutorial-Lab: 2 hours		
Office Hours:				
Course Description: The aim of this course is to introduce students to some of the techniques of modern approaches to game programming such as game engine design, object modeling, game physics, Intelligence in games using AI, game networking, 2D & 3D graphics.				
Textbook: Sue Blackman, Beginning 3D Game Development with Unity 4: All-in-one, Multi-platform Game Development, Technology in Action Series, Apress				

References:

- Steve Rabin, Introduction to Game Development, Charles River Media.
- Kenneth Finney, 3D Game Programming All in One, Thomson Course technology.
- Harbour, Game Programming All in One, Thomson Course Technology.

Course Objective/Course Learning Outcome:	Contribution to Program Student Outcomes:
1. Experiment with game design techniques.	(SO1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Write applications using game programming library.	(SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions. (SO3) Communicate effectively in a variety of professional contexts.
3. Master 2D graphics programming techniques.	(SO2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
4 Experiment with advanced topics such as multi-player games, use of artificial techniques, and 3D graphics programming.	(SO5) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. (SO6) Apply computer science theory and software development fundamentals to produce computing-based solutions.

Course Outline:

1. History of games
2. The Game Development Process
3. Game AI Architecture
4. Movement :Basic Movement
5. Movement: Behaviors, Crowds
6. Movement: Basic Path Finding
7. 7^{th} Week Exam
8. Intelligence: Basic Decision Making
9. Learning: Learning to Predict
10. Networking
11. Game Programming
12. 12^{th} Week Exam
13. GPU Game Programming
14. Sound, Play-Testing
15. Revision
16. Final Exam

Grade Distribution:

7th Week Assessment (30%)

12th Week Assessment (20%)

Year Work (10%)

Final Exam (40%)

Policies:

Attendance:
AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:
AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:
Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)