

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

<b>Course Code:</b> CS443	<b>Course Title:</b> Game Programming	<b>Classification:</b> E	<b>Coordinator's Name:</b> Prof. Dr. Ayman Adel, Dr. Mohamed Magdy <b>Lecturer Name:</b> Dr. Mohamed Magdy	<b>Credit Hours:</b> 3
<b>Pre-requisites:</b> <ul style="list-style-type: none"> <li>• CS243 (Object-oriented Programming)</li> <li>• CS352 (Computer Graphics)</li> </ul>	<b>Co-requisites:</b> None	<b>Schedule:</b> Lecture: 2 hours Tutorial-Lab: 2 hours		
<b>Office Hours: (Room 405)</b> Sunday 12:30 p.m. - 2:30 p.m.				
<b>Course Description:</b>  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.				
<b>Textbook:</b> <u>Sue Blackman</u> , <i>Beginning 3D Game Development with Unity 4: All-in-one, Multi-platform Game Development, Technology in Action Series</i> , Apress				
<b>References:</b> <ul style="list-style-type: none"> <li>• Steve Rabin, Introduction to Game Development, Charles River Media.</li> <li>• Kenneth Finney, 3D Game Programming All in One, Thomson Course technology.</li> <li>• Harbour, Game Programming All in One, Thomson Course Technology.</li> </ul>				

<p><b>Course Objective:</b></p> <ol style="list-style-type: none"> <li>1. Experiment with game design techniques.</li> <li>2. Write applications using game programming library.</li> <li>3. Master 2D graphics programming techniques.</li> <li>4. Experiment with advanced topics such as multi-player games, use of artificial techniques, and 3D graphics programming.</li> </ol>	<p><b>Mapping to student outcomes:</b></p> <p>Student outcome 2, Student outcome 6</p>
<p><b>Contribution to Program Student Outcomes:</b></p> <p><u>Outcome 2:</u> Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.</p> <p><u>Outcome 6:</u> Apply computer science theory and software development fundamentals to produce computing-based solutions.</p>	
<p><b>Course Outline:</b></p> <ol style="list-style-type: none"> <li>1. History of games</li> <li>2. The Game Development Process</li> <li>3. Game AI Architecture</li> <li>4. Movement :Basic Movement</li> <li>5. Movement: Behaviors, Crowds</li> <li>6. Movement: Basic Path Finding</li> <li>7. 7<sup>th</sup> Week Exam</li> <li>8. Intelligence: Basic Decision Making</li> </ol>	<ol style="list-style-type: none"> <li>9. Learning: Learning to Predict</li> <li>10. Networking</li> <li>11. Game Programming</li> <li>12. 12<sup>th</sup> Week Exam</li> <li>13. GPU Game Programming</li> <li>14. Sound, Play-Testing</li> <li>15. Revision</li> <li>16. Final Exam</li> </ol>
<p><b>Grade Distribution:</b></p> <p><b>7th Week Assessment (30%):</b> Exam (20%) + Programming Assignments 10%</p> <p><b>12th Week Assessment (20%):</b> Exam (15%) + Programming Assignments 5%</p> <p><b>Year Work (10%):</b> Project (10%)</p> <p><b>Final Exam (40%)</b></p>	

**Policies:****Attendance:**

AASTMT Education and Study Regulations (available at [aast.edu](http://aast.edu))

**Academic Honesty:**

AASTMT Education and Study Regulations (available at [aast.edu](http://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)*