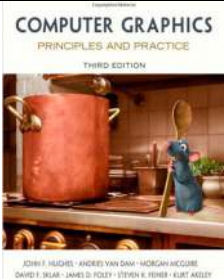
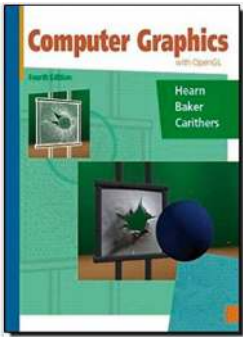
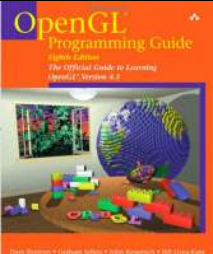




University of Tehran  
School of Electrical and Computer Engineering

<b>Course Name:</b>	<b>Computer Graphics</b>		
<b>Course Category:</b>	Type: Optional	Related Groups: Software/IT/Hardware	Number of Credits: 3
<b>Level:</b>	Undergraduate Level		
<b>Co-requisite(s):</b>	NA		
<b>Prerequisite(s):</b>	Advanced Programming (or approval of instructor)		
<b>Prerequisite by topic:</b>	C++(C#) / Programming Skills, Linear Algebra.		
<b>Textbook(s):</b>	 <p>1. Computer Graphics: Principle and practice (3<sup>rd</sup> edition), John F. Hughes et al., Addison-Wesley Professional, 2014, ISBN-13: 978-0321399526.</p>  <p>2. Computer Graphics with Open GL (4th Edition), Donald D. Hearn et al., Prentice Hall, 2010, ISBN-13: 978-0136053583.</p>		
<b>Instructor:</b>	Reza A. ZOROOFI, Ph.D, Professor		

<b>Goals:</b>	This course is intended to provide fundamental understanding of computer graphics and algorithms for undergraduate level. The goal of the course is to provide the understanding of essential topics including geometrical transformation, projection, clipping and light. The course will as well focus on complementary subjects such as color perception, surface modeling and shading. The course is also intended to bring incoming undergraduate students to learn how to use OpenGL to draw and manipulate 2D/3D objects and generate 3D scenes.
<b>Outcome:</b>	By successful completing of this course, the undergraduate students are expected to be able to understand the fundamental concepts of computer graphics and obtain enough skills to implement adequate programs for basic 3D graphics scene generation with OpenGL.
<b>Topics:</b>	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Geometrical Transformation</li> <li>3. 2D/3D Projections</li> <li>4. Clipping Techniques</li> <li>5. Human Visual System</li> <li>6. Light and Color</li> <li>7. Curves and Surfaces</li> <li>8. Illumination and Shadng</li> <li>9. Texture Mapping</li> <li>10. Hierarchical Representation and Rendering</li> </ol>
<b>Computer usage:</b>	The course is programming dependent. Programming skills in C#/C++ and completing of projects are required. For each topic, OpenGL related tools will be introduced in the class.
<b>Assignments:</b>	Topic based Problem Solving Individual Computer Graphic Programming Related Subject Presentation
<b>Projects:</b>	Topic based Projects Final Exam Projects Term Project
<b>Grading:</b>	Written Assessments (Quiz, Mid-term and Final Exams): 60% Individual Assignment and Projects (s): 15% Presentation and Report: 10% Term Project: 15%
<b>Further readings:</b>	 <p>The OpenGL Programming Guide (9th Edition), John Kessenich et al, Addison-Wesley Professional, 2017, ISBN-13: 978-0134495491</p>
<b>Prepared by:</b>	Reza A. ZOROOFI, Ph.D, Professor

<b>Date:</b>	December 9, 2017