

## Dhonburi Rajabhat University

Faculty of Science and Technology

Department of Computer Science

Code: 4122403

Subject: Computer Graphics

Credit: 3 (2-2-5)

Instructor:

Asst.Prof.Dr. Arsa Tangchitsomkit

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### Course Description

Principles of creation dot, line, geometry, picture, transformation, segments, Windows and clipping, interaction, 3D, 3D clipping, hidden surface and lines, carves, shading, and animation.

### Objective

1. Understand basis of computer graphics.
2. Understand ARSA Framework for computer graphics.
3. Understand computer graphics game programming.

### Content

Week	Description
1	<ul style="list-style-type: none"><li>● Introduction ARSA Framework.</li><li>● principles and theory of computer graphics.</li><li>● First Program!</li></ul>
2-3	<ul style="list-style-type: none"><li>● Load 2D Image.</li><li>● Load Sound, Music.</li><li>● Touch Input.</li><li>● Launch computer assisted instruction app to store.</li></ul>
4	<ul style="list-style-type: none"><li>● Image Collision</li></ul>
5-6	<ul style="list-style-type: none"><li>● 2D Image Layer</li><li>● Audio / Video</li><li>● Missile</li></ul>
7	<ul style="list-style-type: none"><li>● Special FX</li></ul>
8	<ul style="list-style-type: none"><li>● Gamification with computer assisted instruction.</li></ul>

9	<ul style="list-style-type: none"> <li>● Midterm.</li> </ul>
10	<ul style="list-style-type: none"> <li>● Player Status</li> <li>● Gage Parameter</li> </ul>
11-12	<ul style="list-style-type: none"> <li>● Game State</li> <li>● Server - Client Connection</li> </ul>
13-14	<ul style="list-style-type: none"> <li>● Game Theory Techniques.</li> <li>● Artificial Intelligence.</li> <li>● Manager.</li> <li>● FSM (Finite State Machine).</li> <li>● Fuzzy Logic System.</li> <li>● OOP VS Top to Down Program.</li> <li>● Game Business.</li> </ul>
15	<ul style="list-style-type: none"> <li>● Final.</li> </ul>

### Activity

1. Lecture
2. Lab

### Adjustment (100 Points)

#### 1. Midterm (70 Points)

Class	10 Points
Midterm exam	20 Points
Homework	20 Points
Reports	20 Points

#### 2 . Final exam (30 Points)

### Adjustment Rule

Points	0-49	50-54	55-59	60-69	70-79	80-84	85-89	90-100
Grade	F	D	D+	C	C+	B	B+	A

## Book & Handouts

### Handouts.

1. Arsa Tangchitsomkit. 2015. ARSA Framework: Cross Platform Game Programming.  
Bangkok. [www.sarosworld.com/site](http://www.sarosworld.com/site)

### Additional book and website.

1. Arsa T. "Hardcore Game Programming Episode II+III+IV". Published by Innovation media printing. 2005
  2. Arsa T. "Hardcore Game Programming Episode I". Published by ARIP Public Company Limited. 2004
  3. Arsa T. "Advanced DirectX". Published by SE-EDUCATION Public Company Limited. 2002
  4. Arsa T. "DirectX Game Programming". Published by SE-EDUCATION Public Company Limited. 2001
  5. Game developer network. 2548. [www.gamedev.net](http://www.gamedev.net)
  6. Game developer resources. 2548. [www.gamasutra.com](http://www.gamasutra.com)
  7. Game programming. 2548. [www.flipcode.com](http://www.flipcode.com)
  8. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice-Hall, Inc.
  9. Byron S. Gottfried, Theory and Problems of Programming with C, Schaum's Outline Series, International Edition, McGraw-Hill, Inc, ISBN 0-07-023854-5
  10. Borland International, Inc., Borland C++ Version 2.0 Getting Started
  11. Greg Voss and Paul Chui, Turbo C++ Disk Tutor 2nd edition, Osborne McGraw-Hill, ISBN 0-07-881737-4
  12. Lawrence H. Miller, Alexander E. Quilici, The joy of C, 3rd Edition, John Wiley & Sons, 1997
  13. Steven C. Lawlor, , West Publishing Company, 1996. The art of programming computer science with C
  14. Greg Voss and Paul Chui, Turbo C++ DiskTutor, 2nd edition, Osborne McGraw-Hill, ISBN 0-07-881737-4
  15. Harvey M. Deitel and Paul J. Deitel, C++ How to Program, 4th edition, Pearson Educational, Prentice Hall, ISBN 0-13-111881-1
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