Teaching Plan **FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI** **UNIVERSITI TEKNIKAL MALAYSIA MELAKA**		
GAME MECHANICS		
BITE 3723	**SEMESTER 2**	**SESSION 2015/2016**

BITE 3723 GAME MECHANICS (3, 2, 2) Type of course: P

1.0 LEARNING OUTCOMES

Upon completion of this course the student will able to:

1. State and explain the core concepts of the game mechanic. (C4, A3)
2. Develop applications combining elements of the game such as text, graphics, audio, video and animation according to the current requirements. (P4, CTPS)
3. Apply learned skills to solve the problem by selecting some game mechanic environment in which can be used in the game presentation. (P3, LL)

2.0 SYNOPSIS

This course focuses on the game's graphics, physics, sound, and input of artificial intelligent, networking and recognition levels. This course provides a comprehensive foundation in the relevant field of computer games, serving as a premier and provides a context for special courses in final year. This course provide students with an introduction to the theory and practice of video game programming. Students will be involved in lab training sessions and also work together as a team for the awakening of the real game, designing and building their own game works by using the existing game engine (eg OPENGL C++ or Micosoft XNA or DirectX)

3.0 PRE-REQUISITE

None

4.0 PRACTICAL

Hands-on practice is to equip the students with a broad range of skills required for designing game mechanics. These skills enable them to design, build and extend the game mechanics and use it for designing a variety of games. The group project concentrates on game mechanics development using OpenGL, Unity3D, or Microsoft XNA.

5.0 REFERENCES

1. Ernest Adams and Joris Dormans (2012), "**Game Mechanics: Advanced Game Design (Voices That Matter)**". New Riders. ISBN-13: 978-0321820273.
2. Troy Dunniway and Jeannie Novak (2008)," **Game Development Essentials: Gameplay Mechanics 1st Edition".** Delmar Cengage Learning. ISBN-13: 978-1418052690
3. Jason Gregory (2010). "***Game Engine Architecture***". AK Peters. ISBN 978-1-56881-413-1.
4. Ian Millington (2008), "**Game Physics Engine Development: How to Build a Robust Commercial-Grade Physics Engine for your Game**", CRC Press, ISBN 978-0123819765.
5. Dave Shreiner, Graham Sellers, John M. Kessenich, & Bill M. Licea-Kane, "**OpenGL Programming Guide: The Official Guide to Learning OpenGL**, Version 4.3 (8th Edition)", Addison-Wesley Professional, ISBN 978-0321773036.
6. Michelle Menard, "**Game Development with Unity**", Cengage Learning PTR, ISBN 978-1435456587.

6.0 IMPLEMENTATION METHOD

i) Lecture
- 2 hours per week for 14 weeks (Total = 28 hours)

ii) Practical
- 2 hours per week for 14 weeks (Total = 28 hours)

7.0 COURSE EVALUATION

8.0 Assessment Method	LO1	LO2	LO3	Scheme, Rubric/guideline
Quiz (2) = 5%	Q1(3%)	Q2(2%)		
Project 1 = 10%		P1(5%)	P1(5%)	
Lab Assessment = 10%		(5%)	(5%)	
Project 2 = 10%			P2(10%)	
Presentation (1)= 5%	5%			
Lab Test (2) = 20%		LT1(10%)	LT2(10%)	
Mid Term (1) = 10%	(5%)	(5%)		
Final (1) = 30%	(18%)	(12%)		
Total	31%	39%	30%	

8.0 STUDENT LEARNING TIME (SLT)

LEARNING ACTIVITIES	STUDENT LEARNING TIME (BITE 3723)											
	GUIDED LEARNING TIME						INDEPENDENT LEARNING TIME					
	OFFICIAL CONTACT HOURS	FREQ	TOTAL	GUIDED LEARNING HOURS	FREQ	TOTAL	SELF STUDY HOURS	FREQ	TOTAL	ASSESSMENT TIME	FREQ	TOTAL
Lecture	2	14	28	-	-	-	2	14	28	-	-	-
Laboratory + Report	2	14	28	-	-	-	1	14	14	-	-	-
Tutorial	0	0	0	-	-	-	0	0	0	-	-	-
Quiz	-	-	-	-	-	-	0.5	2	1	0.25	2	0.5
Theoretical Test (Midterm)	-	-	-	-	-	-	2	1	2	1	1	1
Lab Test	-	-	-	-	-	-	2	1	2	1	1	1
Discussion	-	-	-	-	-	-	-	-	-	-	-	-
Mini Project - Group	-	-	-	-	-	-	4	1	4	-	-	-
Mini Project - Individual	-	-	-	-	-	-	4	0	0	-	-	-
Assignment - Group	-	-	-	-	-	-	2	1	2	-	-	-
Assignment - Individual	-	-	-	-	-	-	2	1	2	-	-	-
Presentation - Group	-	-	-	-	-	-	1	1	1	0.5	1	0.5
Presentation - Individual	-	-	-	-	-	-	1	1	1	0.5	1	0.5
Final	-	-	-	-	-	-	8	1	8	2	1	2
TOTAL	56			0			65			5.5		
GRAND TOTAL	**126.5**											
TOTAL CREDIT	**3.1625**											

9.0 DETAILED SYLLABUS AND TEACHING PLAN

Week	Session	Contents	References	Delivery Method
1,2	Lecture 1	**Chapter 1 – Designing Game Mechanics** **Chapter 2 – Emergence and Progression**	Ref 1 and 2	Quiz 1 (Chapter 1)
3,4	Lecture 2 Lab 1	**Chapter 3 – Complex Systems and the Structure of Emergence** **Chapter 4 – Internal Economy**	Ref 1 and 2	Quiz 2 (Chapter 2) Midterm (Chapter 3 – 4)
5, 6	Lecture 3 Lab 2	**Chapter 5 – Machinations** **Chapter 6 – Common Mechanisms**	Ref 1 and 2	Project 1
7, 8	Lecture 4 Lab 3	**Chapter 7 – Design Patterns** **Chapter 8 – Simulating and Balancing Games**	Ref 1 and 2 and 3	Lab Test 1 (OpenGL)
9, 10	Lecture 5 Lab 4	**Chapter 9 – Building Economies** **Chapter 10 – Integrating Level Design and Mechanics**	Ref 1 and 2	Project 2

11, 12	Lecture 6 Lab 5	**Chapter 11 – Progression Mechanisms** **Practical** Advanced Game with Unity3D	Ref 1 and 2	
13, 14	Lecture 7 Lab 6	**Chapter 12 – Meaningful Mechanics** **Practical Week 14** Group Presentation for Project 1 **Practical Week 15** Group Presentation for Project 2	Ref 1 and 2	Lab Test 2 (Unity3D)
15		**REVISION WEEK**		
17,18		**FINAL EXAM**		

GAME MECHANICS (BITE 3723)

Matriks LO Kursus Lawan PO Fakulti & Taksonomi

		Matriks LO Kursus Lawan PO Fakulti									Matriks LO Kursus Lawan Tahap Taksonomi																
		PO Fakulti (Pembangunan Permainan Komputer)									**Kognitif (K)**						**Psikomotor (P)**							**Afektif (A)**				
Bil	**LO Kursus**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1**	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**5**
1	State and explain the core concepts of the game mechanic. (C4, A3)	x	x								x	x	x	X										x	x	x		
2	Develop applications combining elements of the game such as text, graphics, audio, video and animation according to the current requirements. (P4, CTPS)	x	x	x	x		x										x	x	x	x								
3	Apply learned skills to solve the problem by selecting some game mechanic environment in which can be used in the game presentation. (P3, LL)	x	x				x			x							x	x	x									
	Subjek: *Mechanics* Permainan Komputer	x	x	x			x			x	x	x	x	x			x	x	x	X				x	x	x		

Matriks LO Lawan Kemahiran Insaniah (LO & KI)

		LL			CS								CTPS							ES				TS					EM			LS			
Bil	**LO Kursus**	**1**	**2**	**3**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**1**	**2**	**3**	**4**
1	State and explain the core concepts of the game mechanic. (C4, A3)																																		
2	Develop applications combining elements of the game such as text, graphics, audio, video and animation according to the current requirements. (P4, CTPS)												x	x	x																				
3	Apply learned skills to solve the problem by selecting some game mechanic environment in which can be used in the game presentation. (P3, LL)	x	x																																
	Subjek: *Mechanics* Permainan Komputer	x	x										x	x	x																				