Game Application & Technology

Introduction

Game Application and Technology program is designed specifically by Computer Science, BINUS University to provide students with knowledge and expertise to develop and create a variety of applied technology in the field of game technology. Game Application and Technology focuses about game art, game design, and game programming. The structure of the course allows students to gain valuable practical experience in building software systems, and also apply knowledge in game creative design. The GAT program was found in September 2012, under BINUS UNIVERSITY, it became one of the programs under the coordination of School of Computer Science and supported by Ministry of Tourism and Creative Economy of the Republic of Indonesia.

Vision

Become a study program of choice in Computer Science, focus in creative software solutions for business and industry, recognized internationally, championing innovation and produce graduates with international qualification.

Mission

The mission of Game Application and Technology Program is to contribute to the global community through the provision of world-class education by :

1. Educating student in the fundamental skills, knowledge, and practice of recent mobile technologies and architectures, wireless technologies, mobile software development, and game design.
2. Conducting research and providing game application and technology professional services with an emphasis on the application of knowledge for society's development.
3. Sharing the application of knowledge related to game application & technology with a view to Indonesians' and the international community quality of life.
4. Influencing students & lecturers to be creative, value-adding and competitive at an international level in game application & technology, by creating a suitable environment.
5. Preparing students as smart and skilled game application & technology professionals, leaders, and entrepreneurs in the global market and/ or to continue in related disciplines.

Program Objective

The objectives of the program are:

1. To provide students with a solid foundation of mathematical, algorithm principles, computer science knowledge and ethical that will be needed in IT practice
2. To provide students with skills to apply design and development principles in the construction of software system applied in database technology, intelligence system, networking, multimedia development, game design and game technology
3. To prepare students with abilities to keep up-to-date with the latest Information Technology specially in computer game technology trends, developments and industries
4. To prepare students with abilities in problem solving and good communication skills to be able to work as an individual or in a team in an IT environment.

Graduate Competency

At the end of the program, graduates will be able to:

1. Apply knowledge and understanding of mathematical concepts, principles and theories relating to computer science knowledge.
2. Demonstrate knowledge and understanding of algorithm concepts, principles and theories relating to computer science knowledge especially in Game Application and Technology.
3. Classify problems and to apply design and development principles for specific problems
4. Classify criteria and specifications appropriate to specific problems, plan strategies for their solution and construct appropriate software systems especially in Game Application and Technology.
5. Construct a solution by applying current technologies especially in Game Application and Technology.
6. Identify trend technologies in the future especially in Game Application and Technology.

Prospective Career of the Graduates

After finishing the program, the graduate of Game Application and Technology Program could follow a career as:

1. Game Engineer
2. Game Developer
3. Game Artist
4. Game Designer
5. Game Director
6. Game Content Provider
7. Entrepreneur
8. Game Consultant
9. Academician in multimedia and games (Lecturer, Trainer, Researcher)

Curriculum

The present curriculum used in the Game Application & Technology program has been developed in line with the National Curriculum. Also, the local content has been developed in line with the Computer Science Curriculum standard of ACM (Association for Computing Machinery), several local and foreign universities, national and international game industry (developer, publisher), up-to-date game technologies and market trends, so that the graduates of the Game Application & Technology program are expected to be able to face competition at both a national and international level. Generally, the subjects of the curriculum are divided into these following groups of subjects:

Mathematics Group (Science)

The objective of this group is to provide an understanding of mathematics as one of the principal foundations in computer science. Another objective is to give an understanding of scientific methodology (data collection, hypothesis, research, analysis) in problem solving.

Character Building Group (Professional Practices)

The objective of this group is to develop the personal strengths of the student and to provide him or her with a professional character, professionalism in their field, management skills, oral and written communication skills, understanding of business ethic, ability to work as a team, and to develop a "Binusian" Character.

Core Group

The objective of this group is to provide grounding in Game Application Technology program through practice as well as applied theory which are required by business both now and in the future. The subjects that are included in this group are programming, algorithm design and analysis, software engineering, databases, computer graphs, multimedia, computer and human interaction, operation system, Game Art, Game Programming, and Game Design.

The Field of GAT Subject

The objective of builds the field of subject in Game Application Technology is to give the students a solid foundation of software development skills and to introduce the specific skills needed for developing game applications. The students are expected to develop their skills and master the techniques which will allow them to conduct research for both their thesis and/or to continue their studies.

The field of GAT subjects:

1. Game Art: to explore the various methodologies and techniques of game art.
2. Game Design: to explore the various methodologies and techniques of game story design, game play design, human and computer interaction design.
3. Game Programming: to explore the various techniques of game programming.

All students of GAT program must follow these three fields to become Game Application Technology graduates. The objective of these three fields is to provide the students with the knowledge and skills required by business & industry and who wants to develop the own game company. Although it is distributed across 8 semesters, in fact, it is possible for the students to finish their studies before the eighth semester.

Course Structure

Sem	Code	Course Name	SCU	Total
1	CB412	CB: Self Development	2	20
	K0144	Discrete Mathematics	4	
	K0292	Linear Algebra	2	
	T0016	Algorithm and Programming	4/2	
	I0262	Probability and Statistics	2	
	T1182	Introduction to Game Technology	2	
	G1372	English Entrant	2	
2	CB422	CB: Spiritual Development	2	20
	K0424	Calculus I	4	
	T0026	Data Structures	4/2	
	T1192	Game Design	2	
	T1214	Object Oriented Game Programming	2/2	
	G1382	English in Focus	2	
3	T0034	Algorithm Design and Analysis	4	20
	G1392	English Savvy	2	
	EN001	Entrepreneurship I	2	
	T1994	2D Game Programming	4	
	T2102	Storyboarding & Concept Art	2	
	T0104	Program Design Methods	4	
	T1302	User Experiences	2	
4	CB432	CB: Interpersonal Development	2	23
	H0515	Computer Network	4/1	
	T0206	Database Systems	4/2	
	T0264	Artificial Intelligence	4	
	T1414	Software Engineering*	4	
	T1912	2D Animation	2	
5	CB442	CB: Professional Development	2	23
	T0316	Operating System	4/2	
	T0174	Compilation Techniques	4	
	EN002	Entrepreneurship II	2	
	T2114	Mobile & Web Game Programming *	4	
	T2122	3D Modelling for Games	2	
	T0593	Human and Computer Interaction	2/1	
6	T2138	Internship I	8	16
	T2144	EES in Game Industry I	4	
	T2152	Game Production in Industry	2	
	T2162	Game Prototyping in Industry	2	

Sem	Code	Course Name	SCU	Total
7	T2188	Internship II	8	18
	T2194	EES in Game Industry II	4	
	T2172	Game Engine Programming**	2	
	T2202	Game Testing and Quality Assurance in Industry	2	
	T2212	Game Research Quest in Industry	2	
8	T1956	Thesis	6	6
	Elective Courses			
	G1402	English for Business Presentation	2	
	G1412	English for Written Business Communication	2	
			TOTAL CREDIT 146	

*) Entrepreneurship embedded

**) This course is available for online

Student should pass all of these quality controlled examinations as listed below:

No	Code	Course Name	Minimum Grade
1	CB412	CB: Self Development	B
2	EN002	Entrepreneurship II	C
3	T0016	Algorithm and Programming*	C
4	T0026	Data Structures*	C
5	T0104	Program Design Methods*	C
6	T1414	Software Engineering*	C
7	T1192	Game Design	C
8	T1994	2D Game Programming	C

*) Tutorial & Multipaper