



## SCHOOL OF **COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

### **PROSPECTUS**

SCHOOL YEAR 2015 - 2016

#### BACHELOR OF SCIENCE IN ENTERTAINMENT AND MULTIMEDIA COMPUTING

The **Bachelor of Science in Entertainment and Multimedia Computing (BS EMC) Program** of Asia Pacific College is a four (4)-year trimestral degree program that aims to produce graduates that will design and develop multimedia products and solutions needed in society and in the local and global industry. It includes the design and development of applications by blending the latest Information Technology tools, animation and game techniques, industry-based programming approach, and audio-visual aspects. Such applications may be used in science, entertainment, education and advertising, to name a few.

Asia Pacific College builds on its strong game art experience with the School of Multimedia Arts and incorporates this to School of Computer Science and Information Technology's method of iterative prototyping, called "Agile Development".

While the majority of work is done on independent basis, there are numerous opportunities to develop teamwork skills with group based projects throughout the course. Asia Pacific College – School of Computer Science and Information Technology adapts the Project-Based Learning (PBL) model where theories and concepts are blended with application-oriented laboratory exercises and project experiences coupled with strong industry partnerships to give the students a complete and holistic approach to learning.

The BS EMC Program will provide specialized training in Game Development.

***Specialization in Game Development***

The goal of this specialization is to expose students to the entire game software development lifecycle through Project-Based Learning (PBL) to meet industry's need of game developers as game developments continue to rise due to newer distribution systems and pervasiveness of mobile devices.

Using SoCSIT's PBL approach, students form teams that collaborate on the game design and development and work in state-of-the-art computing laboratories, mentored by highly qualified faculty members.

Students will be exposed to handling various roles throughout the game development lifecycle : a Game Designer who designs gameplay conceiving and designing the rules and structure of the game, a Game Artist who creates video game art, a Game Programmer who primarily develops video games or related software (e.g game. development tools), a Level Designer who creates levels, challenges or missions for computer and/or video games, Sound Engineers who are responsible for sound effects, voice acting and other sounds, and Testers who carry out quality assurance.

**GRADUATE SKILLS**

Graduates of the BS-EMC Program with specialization in Game Development are expected to possess:

<ol style="list-style-type: none"> <li>1. Game Design and Development Skills             <ol style="list-style-type: none"> <li>a. Game Design</li> <li>b. Game Programming</li> <li>c. Game Production</li> <li>d. Game Asset Integration</li> <li>e. Graphics Programming</li> </ol> </li> <li>2. IT Programming Skills</li> <li>3. Drawing Skills</li> <li>4. Sound Engineering</li> <li>5. Project Management</li> <li>6. Applied Mathematics for EMC</li> </ol>	<ol style="list-style-type: none"> <li>7. Soft Skills and Values             <ol style="list-style-type: none"> <li>a. Communication Skills                 <ol style="list-style-type: none"> <li>i. Verbal Communication</li> <li>ii. Written Communication</li> <li>iii. Visual Communication</li> </ol> </li> <li>b. Presentation Skills</li> <li>c. Critical Thinking and Problem Solving</li> <li>d. Creativity and Innovation</li> <li>e. Team Work</li> <li>f. Adaptability to Change</li> <li>g. Understanding of the EMC Businesses</li> <li>h. Leadership</li> <li>i. Professional Ethics</li> <li>j. Compliance to Intellectual Property Laws</li> </ol> </li> </ol>
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## JOB AVAILABILITY

Game Designers, Game Developers, Game Project Manager, Game Programmer, Level Designers, Game Testers, Web/Mobile Apps Developers, Multimedia Developers, Lead Tools Developer, Associate Technical Director, Associate Game Quality Assurance Specialist, Interactive Software Developer, Associate Game Producer, Game Sound Engineer, Graphics Programmer, Associate Business Development Specialist for Entertainment and Multimedia Industries

## INDUSTRY PARTNERS

• ABS-CBN	• IBM Solutions & Delivery	• Media Farm Global
• Anino Games, Inc.	• Ice Cream Cake Productions	• Mind Tap Studios
• Flipside Games Studios, Inc.	• Inigo-Entertainment	• Post Manila / Mothership Studios
• Game Services Group (Ladyluck)	• Inquirer.Net	• Red Panda Graphics
• Garena Phils.	• IP Ventures Group of Company (E-Games)	• Suspended Animation
• GMA-New Media, Inc.	• Juiced & Wrapped Ideas	• TV5
• Holy Cow! Animation, Inc.	• Larger than Life Productions	• Unitel Productions
• IBM Philippines, Inc.	• LFX Studios	

## PROGRAM OUTCOMES

EMCPO1	To keep abreast of the developments in IT, Entertainment and Multimedia Computing, specifically in Game Development
EMCPO2	To effectively communicate orally and in writing
EMCPO3	To work effectively and independently in multi-disciplinary and multi-cultural teams
EMCPO4	A recognition of professional, social and ethical responsibility
EMCPO5	An appreciation of “Filipino historical and cultural heritage”
EMCPO6	To design and develop multimedia products and innovative solutions for society, locally and/or globally, blending Information Technology tools, industry-based programming and game techniques .

## EMC GRADUATE ATTRIBUTES

[KNW]	Knowledge for Solving Computing Problems
[PRB]	Problem Analysis
[DEV]	Design / Development of Solutions
[MTL]	Modern Tool Usage
[WRK]	Individual and Team Work
[COM]	Communication
[PRF]	Computing Professionalism and Society
[ETH]	Ethics
[LFE]	Life-Long Learning
[CRE]	Creativity
[SRV]	Service Orientation
[INN]	Innovation
[INT]	Integrity
[IND]	Industry

**EMC GRADUATE OUTCOMES**

EMCGO1	[KNW]	An ability to apply knowledge of mathematics, physical sciences, computing sciences to the practice of being an entertainment and multimedia computing professional
EMCGO2	[KNW], [INV]	Specialized computing knowledge in each applicable field, and the ability to apply such knowledge to provide innovative solutions to actual problems
EMCGO3	[KNW]	A knowledge of contemporary issues
EMCGO4	[PRB]	An ability to analyze project requirements and to design and implement project prototypes
EMCGO5	[PRB]	An ability to recognize, formulate, and solve computing problems.
EMCGO6	[PRB]	An ability to design, build, improve, and deploy products that meets client needs within realistic constraints
EMCGO7	[MTL]	An ability to use the appropriate techniques, skills and modern computing tools necessary for the practice of being a professional game developer
EMCGO8	[WRK]	An ability to work effectively in multi-disciplinary and multi-cultural teams
EMCGO9	[COM]	An ability to effectively communicate orally and in writing using the English language
EMCG10	[PRF]	An ability to understand and assess local and global impacts of computing on society relevant to professional computing practice and subscription to accepted industry standards
EMCG11	[ETH]	An understanding of the effects and impact of entertainment and multimedia computing projects on nature and society, and of their social and ethical responsibilities
EMCG12	[ETH]	An ability to create or use modified artifacts in consideration of intellectual property rights of the author
EMCG13	[LFE]	An ability to engage in life-long learning and an acceptance of the need to keep current of the development in the specific field of specialization
EMCG14	[CRE]	An ability to demonstrate original creative outputs
EMCG15	[SRV]	An ability to demonstrate client-centric service
EMCG16	[INV]	An ability to demonstrate innovativeness in their outputs
EMCG17	[INV]	An ability to participate in various types of activities and public discourses particularly in response to the needs of the communities one serves, supporting national, regional and local development plans
EMCG18	[INT]	An ability to perform individual and group tasks with integrity (honesty) and strong sense of moral and ethical principles
EMCG19	[IND]	An ability to demonstrate a sense of industry or hardwork



**BACHELOR OF SCIENCE IN ENTERTAINMENT and MULTIMEDIA COMPUTING**  
**With Specialization in Game Development**

CHED CMO 02 Series of 2014		APC (BS EMC 2015)	
SUMMARY	CREDIT UNITS	SUMMARY	CREDIT UNITS
A. GENERAL EDUCATION		A. GENERAL EDUCATION	
1. LANGUAGES AND HUMANITIES	21	1. LANGUAGES AND HUMANITIES	30
2. MATHEMATICS, NATURAL SCIENCES, TECHNOLOGY	21	2. MATHEMATICS, NATURAL SCIENCES, TECHNOLOGY	21
3. SOCIAL SCIENCES AND COMMUNICATIONS	15	3. SOCIAL SCIENCES AND COMMUNICATIONS	18
B. COMMON COMPUTING COURSES	18	B. COMMON COMPUTING COURSES	18
C. EMC CORE COURSES	27	C. EMC CORE COURSES	27
D. EMC PROFESSIONAL COURES	27	D. EMC PROFESSIONAL COURES	30
E. EMC PROFESSIONAL ELECTIVE COURSES	9	E. EMC PROFESSIONAL ELECTIVE COURSES	9
F. CAPSTONE PROJECT	6	F. CAPSTONE PROJECT	6
G. INTERNSHIP	9	G. INTERNSHIP	18
H. PHYSICAL EDUCATION	8	H. PHYSICAL EDUCATION	8
I. NSTP	6	I. NSTP	6
		J. IT and BUSINESS COURSES	21
<b>Total Units</b>	<b>167</b>	<b>Total Units</b>	<b>212</b>

CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>A. GENERAL EDUCATION</b>			<b>A. GENERAL EDUCATION</b>			
<b>1. LANGUAGES AND HUMANITIES</b>			<b>1. LANGUAGES AND HUMANITIES</b>			
English		9	English			18
English 1	3		Grammar and Composition Development	EGRAMCM	3	
English 2	3		Oral Communication in English	EPUBSP1	3	

English 3	3		Speech Communication	EPUBSP2	3	
			Research Writing	ERESWRT	3	
			Technical Writing	ETECWRT	3	
			Expository Writing	EEXWRT	3	
Filipino		6	Filipino			6
Filipino 1	3		Sining ng Pakikipagtalastasan	FILIONE	3	
Filipino 2	3		Panitikang Pilipino	FILITWO	3	
Humanities (Literature, Arts, Philosophy, etc.)		6	Humanities			6
Literature	3		World Literature	EWORLIT	3	
Arts	3		Art Appreciation	ARTAPRE	3	
<b>Subtotal</b>	<b>21</b>	<b>21</b>	<b>Subtotal</b>		<b>30</b>	<b>30</b>

CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>2. MATHEMATICS, NATURAL SCIENCES, TECHNOLOGY</b>			<b>2. MATHEMATICS, NATURAL SCIENCES, TECHNOLOGY</b>			
Mathematics		9	Mathematics			9
Math 1	3		College Algebra	ALGEBRA	3	
Math 2	3		Discrete Mathematics	DISMATH	3	
Math 3	3		Solid Analytic Geometry with Trigonometry	GEOMTRI	3	
Natural Sciences		9	Natural Sciences			9
Natural Science 1	3		Natural Physics 1	PHYSIC1	3	
Natural Science 2	3		Natural Physics 2	PHYSIC2	3	
Natural Science 3	3		Chemistry	CHEMIST	3	
Introduction to ICT (includes IT infrastructure)		3	IT Concepts (Introduction to ICT with IT Infrastructure)	ITCONCE	3	3
<b>Subtotal</b>	<b>21</b>	<b>21</b>	<b>Subtotal</b>		<b>21</b>	<b>21</b>

CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>3. SOCIAL SCIENCES AND COMMUNICATIONS</b>		15	<b>3. SOCIAL SCIENCES AND</b>			18

			<b>COMMUNICATIONS</b>			
Psychology	3		Behavioral Science	BEHASCI	3	
Philippine History	3		Philippine History and Constitution	HISTORY	3	
Life & Works of Rizal	3		The Life and Works of Rizal	RIZLIFE	3	
World Civilization and Cultures	3		World Civilization and Culture	WORCVIC	3	
Sociology	3		Society & Culture with Values Education	SOCUVAL	3	
			Applied Project 1	APPROJ1	3	
<b>Subtotal</b>		<b>15</b>	<b>Subtotal</b>		<b>18</b>	<b>18</b>

<b>CHED CMO 02 Series of 2014</b>	<b>CREDIT UNITS</b>	<b>CREDIT UNITS PER CLUSTER</b>	<b>APC (BS EMC 2015)</b>	<b>COURSE CODE</b>	<b>CREDIT UNITS</b>	<b>CREDIT UNITS PER CLUSTER</b>
<b>B. COMMON COMPUTING COURSES</b>		18	<b>B. COMMON COMPUTING COURSES</b>			18
Introduction to Computing	3		Introduction to Computing and IT Trends	INTCOMP	3	
Computer Programming 1	3		Programming Concepts and Logic	PROGCON	3	
Computer Programming 2	3		Introduction to Programming & Theories	INPROLA	3	
Data Structures and Algorithms	3		Data Structures and Algorithms	DASTRUC	3	
Information Management	3		Database and Information Management 1 and 2	DATAMAS	3	
Applications Development & Emerging Technologies	3		Applications Development & Emerging Technologies	APPLDEV	3	
<b>Subtotal</b>		<b>18</b>	<b>Subtotal</b>		<b>18</b>	<b>18</b>

<b>CHED CMO 02 Series of 2014</b>	<b>CREDIT UNITS</b>	<b>CREDIT UNITS PER CLUSTER</b>	<b>APC (BS EMC 2015)</b>	<b>COURSE CODE</b>	<b>CREDIT UNITS</b>	<b>CREDIT UNITS PER CLUSTER</b>
<b>C. EMC CORE COURSES</b>		27	<b>C. EMC CORE COURSES</b>			27
Freehand and Digital Drawing	3		Freehand and Digital Drawing	DRWGDES	3	

Introduction to Game Design and Development	3		Introduction to Game Design and Development	GNTSDEV	3	
Computer Graphics Programming	3		Computer Graphics Programming	GRAPROG	3	
Usability, HCI, and User Interaction Design	3		UI/UX Design and Programming	USERDES	3	
Principles of 2D Animation	3		Principles of 2D Animation	2DANIMA	3	
Audio Design and Sound Engineering	3		Digital Sound	DGSOUND	3	
Script Writing and Storyboard Design	3		Script Writing and Storyboard Design	SSTORYB	3	
Principles of 3D Animation	3		Principles of 3D Animation	3DANIMA	3	
Design and Production Process	3		Game Design and Production Process	DESPROD	3	
<b>Subtotal</b>	<b>27</b>	<b>27</b>	<b>Subtotal</b>		<b>27</b>	<b>27</b>

CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>D. EMC PROFESSIONAL COURSES</b>		27	<b>D. EMC PROFESSIONAL COURSES</b>			30
Game Programming 1	3		2D Game Programming	GAMPRG1	3	
Game Programming 2	3		3D Game Programming	GAMPRG2	3	
Applied Mathematics for Games	3		Applied Mathematics for Games	GMEMATH	3	
Applied Game Physics	3		Applied Game Physics	GMEPHYS	3	
Game Programming 3	3		Advance Game Programming	GAMPRG3	3	
Artificial Intelligence in Games	3		Artificial Intelligence in Games	AIGAMES	3	
Advanced Game Design	3		Advanced Game Design	ADGADES	3	
Game Networking	3		Network Capable Games	GAMENET	3	
Game Production	3		Game Production	GAMPROD	3	
			Gameplay Theory	GAMPTHE	3	
<b>Subtotal</b>	<b>27</b>	<b>27</b>	<b>Subtotal</b>		<b>30</b>	<b>30</b>



CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>E. EMC PROFESSIONAL ELECTIVE COURSES</b>		9	<b>E. EMC PROFESSIONAL ELECTIVE COURSES</b>			12
Free Elective 1	3		Elective 1	ELECTV1	3	
Free Elective 2	3		Elective 2	ELECTV2	3	
Free Elective 3	3		Elective 3	ELECTV3	3	
			Choices of Elective Tracks:			
			GAME ART & ANIMATION			
			3D Modeling, UV Mapping & Texturing	3DMODEL		
			Digital Imaging	DIGIMAG		
			Game Art Production	GAMEART		
			SPECIALIZED PROGRAMMING			
			C/C++ Programming	CPROGRA		
			Enterprise Java (Mobile App)	ENTJAVA		
			Enterprise Java 2 (Mobile App)	ENTJAV2		
			BUSINESS			
			Computerized Analytics Information System	COMPAIS		
			Accounting for IT	ACCOUNT		
			Economics and Taxation	ECONTAX		
<b>Subtotal</b>		<b>9</b>	<b>Subtotal</b>		<b>9</b>	<b>12</b>

CHED CMO 02 Series of 2014		CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>F. CAPSTONE PROJECT</b>		6	<b>F. CAPSTONE PROJECT</b>			6
Capstone Project 1	3		Game Capstone Project 1	GMPROJ1	3	
Capstone Project 2	3		Game Capstone Project 2	GMPROJ2	3	
<b>Subtotal</b>		<b>6</b>	<b>Subtotal</b>		<b>6</b>	<b>6</b>

CHED CMO 02 Series of 2014		CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>G. INTERNSHIP</b>		9	<b>G. INTERNSHIP</b>			18
Internship (486 hours)			Internship 1	INTERN1	9	
			Internship 2	INTERN2	9	
<b>Subtotal</b>		<b>9</b>	<b>Subtotal</b>		<b>18</b>	<b>18</b>

CHED CMO 02 Series of 2014		CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>H. PHYSICAL EDUCATION</b>		8	<b>H. PHYSICAL EDUCATION</b>			8
Physical Education 1	2		Peduone	PEDUONE	2	
Physical Education 2	2		Pedutwo	PEDUTWO	2	
Physical Education 3	2		Pedutri	PEDUTRI	2	
Physical Education 4	2		Pedufor	PEDUFOR	2	
<b>Subtotal</b>		<b>8</b>	<b>Subtotal</b>		<b>8</b>	<b>8</b>

CHED CMO 02 Series of 2014	CREDIT UNITS	CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
<b>I. NSTP</b>		6	<b>I. NSTP</b>			6
National Service 1	3		National Service 1	NATSER1	3	
National Service 2	3		National Service 2	NATSER2	3	
<b>Subtotal</b>		<b>6</b>	<b>Subtotal</b>		<b>6</b>	<b>6</b>

CHED CMO 02 Series of 2014		CREDIT UNITS PER CLUSTER	APC (BS EMC 2015)	COURSE CODE	CREDIT UNITS	CREDIT UNITS PER CLUSTER
			<b>J. AUGMENTED COURSES</b>			<b>21</b>
			Computer Organization	COMPORG	3	
			Operating Systems 1 and 2	OPESYST	3	
			Network Security, Storage and Data Communication	DNETCOM	3	
			Probability and Statistics	QUAMET1	3	
			Management Principles	MANPRIN	3	
			Technopreneurship	TENTREP	3	
			Professional Ethics	PROFETH	3	
			<b>Subtotal</b>		<b>21</b>	<b>21</b>

<b>Total Units</b>	<b>167</b>	<b>Total Units</b>	<b>212</b>
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