



Republic of the Philippines  
OFFICE OF THE PRESIDENT  
COMMISSION ON HIGHER EDUCATION

CHED MEMORANDUM ORDER (CMO)  
NO. 18;  
Series of 2008

SUBJECT : **MODEL EMBEDMENT OF TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) TRAINING REGULATIONS (TRs) IN THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE (BSCS), BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSIT), AND BACHELOR OF SCIENCE IN INFORMATION SYSTEM (BSIS) PROGRAMS**

X-----X

In accordance with pertinent provisions of Republic Act (RA) No. 7722, otherwise known as the "Higher Education Act of 1994," and by virtue of Resolution No. **927-2007** of the Commission En Banc (CEB) dated **December 10, 2007**, the Model Embedment of Technical and Vocational Education and Training (TVET) Training Regulations (TRs) in the Bachelor of Science in Computer Science (BSCS), Bachelor of Science in Information Technology (BSIT) and Bachelor of Science in Information System (BSIS) programs are hereby adopted and promulgated by the Commission.

**ARTICLE I**  
**AUTHORITY TO OPERATE**

**Section 1. Authority to Operate.** The ladderized BSCS, BSIT and BSIS programs shall be operated only by Higher Educational Institutions (HEIs) with proper authority granted by the Commission on Higher Education (CHED) and by the respective Boards in the case of chartered State Universities and Colleges (SUCs), Local Colleges and Universities (LCUs) and upon issuance of Certificate of Programs Recognition (CoPR) by the Technical Education Skills Development Authority (TESDA). Said institutions shall submit application with full documentation in compliance with the requirements of this CMO and CMO No. 8, s.2007, otherwise known as "Amendments to CMO No. 38, s.2006 Entitled Procedures in the Processing of Applications for the Grant of Authority to operate Ladderized Programs as part of the implementation of Executive Order No. 358.

## ARTICLE II CURRICULUM

**Section 2. Curriculum Description.** The model curriculum shall be built upon a core of courses, professional courses and TVET competencies leading to one or more of the three ladderized programs in ITE. The New General Education Curriculum as mandated by the Commission shall form part of the requirements for the model embedment. The required natural science courses in the GE curriculum should include a laboratory component. TESDA Training Regulations embedded in this curriculum are as follows:

- PC Operations NC II
- Programming NC IV
- Computer Hardware Servicing NC II
- Animation NC III
- Contact Center NC II

**Section 3. Curriculum Outline.** The curriculum outline is divided into six (6) components namely: General Education, Basic ITE Core Courses, ITE Professional Courses, ITE electives, free electives and TVET courses.

PC Operations is embedded into the General Education Curriculum, while Programming is embedded in the ITE curriculum. Animation (for IS), Contact Center (for IS) and Computer Hardware Service (for IT) can be electives in specific undergraduate programs.

**Section 4. Faculty Qualifications and Other Requirements.** HEIs who would like to offer the ladderized programs, should satisfy the TESDA requirements e.g. faculty qualifications and the necessary laboratory facilities.

For purposes of identification of TVET programs to be embed in BS programs, the following acronym shall be adopted:

Acronym	TVET Program	Certificate Level	Nominal Hours (for Core modules)
A	Animation	NC III	440
CC	Contact Center	NC II	320
CH	Computer Hardware Servicing	NC II	320
PC	PC Operations	NC II	178
P	Programming	NC IV	204

The outline is as follows:

GENERAL EDUCATION (54)	Units	Total Units	Module	TVET Competencies	Performance & Range	Nominal Hrs.
<b>Languages and Humanities</b>		<b>24</b>				
English • English 1 • English 2 • English 3	9		1105 (CC,CH &PC)	Participate in workplace communication	Memo and filing system	4
			1115 (P)	Utilize specialized communication skills	Presentation skill, group interaction, interview	3
			3332 (CC)	Communicate effectively using the English language	Grammar, Active Listening techniques, Paralinguistic cues (voice, accent)	
Filipino • Filipino 1 • Filipino 2	6					
Humanities (Literature, Arts, Philosophy, etc.) • Literature • Arts • Philosophy	9					
<b>Mathematics, Natural Sciences and Technology</b>		<b>15</b>				
Mathematics • Algebra • Trigonometry	6		1113 (A)	Use mathematical concepts and techniques	Algebra	9
			1201 (CH)	Perform mensuration and calculation	Geometry (not Trigonometry) must know the use of measuring instruments	18
Natural Sciences • Chemistry • Physics	6					
Electives (Math, Natural Science, Technology etc.) • Probability & Statistics	3		1118 (P)	Collect, analyze and organized information	Statistics	9
<b>Social Sciences</b>		<b>12</b>				
• Psychology • Economics (w/ Taxation & Agrarian Reform Integrated) • Society and Culture (with Family Planning) • Politics & Governance (with Philippine Constitution) May be added beyond 12 units • Sociology • Anthropology • Asian/Western Civilization • Mass Comm.						
<b>Mandated Course</b>		<b>3</b>				
• Life & Works of Rizal						
<b>PE</b>		<b>(8)</b>				
<b>NSTP</b>		<b>(6)</b>				

B1)

TVET CORE COURSES (9) Will earn CC and PC	Units	Total Units	Module	TVET Competencies	Performance & Range	Nomin al Hrs.
<b>Core Module All</b>		<b>9</b>				
• Quality Standards and Safety	1.5		5202 (CC, CH, PC & P)	Apply quality standards	Customer satisfaction	9
			1108 (CC, CH & PC)	Practice occupational health and safety procedures	Safety regulations, hazards/risks, contingency measures	4
			1120 (P)	Promote environmental protection	Legislation and conventions, industrial standards and environment practice	3
			1114 (A)	Use relevant technologies	Maintenance of technology is applied in accordance with the industry standard operating procedure, manufacturer's operating guidelines and occupational health and safety procedure	9
• Professional Development	1.5		1107 (CC,CH , PC)	Practice career professionalism	Performance evaluation	6
			1106 (CC,CH , PC)	Work in a Team Environment	Job procedure, Client/supplier instruction	4
			1116 (P)	Develop teams and individuals	Feedback on performance, learning delivery methods	3
			1117 (P)	Apply problem solving techniques	Area of responsibility or team leader or supervisor	3
			1119 (P)	Plan and organize work	Work plans	3
• Office Productivity (part of the curriculum of IS)	3 1 lab		1201 (PC & P)	Operate a personal computer		1
			1203 (A, CC, CH)	Perform computer operations		2
			3334 (CC)	Perform basic computer operation and internet navigation		3
			3324 (PC)	Operate a word-processing application		30
			3325	Operate a		30

		(PC)	spreadsheet application		
		3326 (PC)	Operate a presentation package		18
		3327 (PC)	Use email and search the web using browsers		9
• Contact Center	3 (1 lab)	3333 (CC)	Deliver quality customer service	Must provide simulated phone environment	40
		3335 (CC)	Demonstrate understanding and knowledge for the American culture and geography	Must provide contact center equipment	40

B2)

TVET SPECIALIZATION COURSES (Integrated as program electives)	Units	Total Units	Module	TVET Competencies	Performance & Range	Nomin al Hrs.
<b>CH (for IT only)</b>		<b>6</b>				
• Electronics (with Technical Drawing)	3 (1 lab)		1202 (CH)	Prepare and interpret technical drawing	Electrical/electronic schematic is drawn and correctly identified	
			4201 (CH)	Use hand tools	Safety and protective equipment must be provided	
			4202 (CH)	Terminate and connect electrical wiring and electronics circuit		
• Network Administration and Maintenance	3 (1 lab)		4321 (CH)	Diagnose and troubleshoot computer systems		27
			4319 (CH)	Maintain computer systems and networks		27
<b>A (for IS only)</b>		<b>12</b>				
• Customer Relations Management	3		1109 (A)	Lead workplace communication	Must provide simulated workplace	
			1110 (A)	Lead small teams		
			1111 (A)	Develop and practice negotiation skills	Must have human negotiators	
			1112 (A)	Solve problems related to work activities		
• Digital Media Development (2D Digital Drawing and Animation)	3 (1 lab)		3316 (A)	Produce key drawings for animation		40
			3313 (A)	Produce cleaned-up & in-betweened drawings		80
• Digital Media Development (3D Digital Animation)	3 (1 lab)		3320 (A)	Create 3D digital animation		240

• Digital Media Development (Interactive Media)	3 (1 lab)		3323 (A)	Use an authoring tool to create an interactive sequence		80
---	--------------	--	-------------	---	--	----

\* Specialization Courses may be taken as electives in specific undergraduate programs. In the event the specialization courses are to be integrated in other undergraduate programs other than prescribe, it must be taken over and above the minimum requirements. However such program is not recommended.

#### For Computer Science (CS)

	Computer Science (87)	Units	Total Units	Module	TVET Competencies	Performance & Range	Nominal Hrs.
c)	<b>CS CORE COURSES</b>		<b>18</b>				
	• Programming 1	3 (1 lab)		3328 (P)	Design program logic	Data flow Diagram (DFD), Hierarchical Input Process Output (HIPO)	54
	• Programming 2	3 (1 lab)		3329 (P)	Apply program development approach		54
	• CS Fundamentals • Discrete Structures • Computer Organization and Assembly Language • Professional Ethics						
d)	<b>CS PROFESSIONAL COURSES</b>		<b>33</b>				
	• Database Systems	3 (1 lab)		3330 (P)	Apply object oriented programming skills		54
	• Object Oriented Programming	3 (1 lab)		3331 (P)	Apply programming skills in a second language	Structured Query Language (SQL)	54
	• Data Structures • Design and Analysis of Algorithms • Programming Languages • Automata and Language Theory • Digital Design • Operating Systems • Software Engineering • Calculus • Modelling and Simulation						
e)	<b>CS ELECTIVE COURSES</b>		<b>12</b>				
	• Embedded Systems • Graphics and Visualization • Human Computer Interaction • Intelligent Systems / Artificial Intelligence • Compilers • Net-centric Computing • Mobile Computing, Computer Security • IT Project Management • Advanced Discrete Structures • or other relevant courses						

f)	<b>FREE ELECTIVE COURSES</b>		<b>9</b>			
g)	<b>RECOMMENDED REQUIRED COURSES</b>		<b>15</b>			
	<ul style="list-style-type: none"> <li>• Networks Principles and Programming</li> <li>• Web Programming</li> <li>• OJT</li> <li>• Thesis 1</li> <li>• Thesis 2</li> </ul>	3 3 3 3 3				
	<b>TOTAL UNITS</b>		<b>150 (14)</b>			

For Information Technology (IT)

	<b>Information Technology (84)</b>	<b>Units</b>	<b>Total Units</b>	<b>Module</b>	<b>TVET Competencies</b>	<b>Performance &amp; Range</b>	<b>Nominal Hrs</b>
b)	<b>IT CORE COURSES</b>		<b>18</b>				
	<ul style="list-style-type: none"> <li>• Programming 1</li> </ul>	3 (1 lab)		3328 (P)	Design program logic	Data flow Diagram (DFD), Hierarchical Input Process Output (HIPO)	54
	<ul style="list-style-type: none"> <li>• Programming 2</li> </ul>	3 (1 lab)		3329 (P)	Apply program development approach		54
	<ul style="list-style-type: none"> <li>• IT Fundamentals</li> <li>• Discrete Structures</li> <li>• Computer Organization</li> <li>• Professional Ethics</li> </ul>						
c)	<b>IT PROFESSIONAL COURSES</b>		<b>33</b>				
	<ul style="list-style-type: none"> <li>• Object Oriented Programming</li> </ul>	3 (1 lab)		3330 (P)	Apply object oriented programming skills	Object Oriented Programming	54
	<ul style="list-style-type: none"> <li>• Database Management Systems</li> </ul>	3 (1 lab)		3331 (P)	Apply programming skills in a second language	Database systems – SQL	54
	<ul style="list-style-type: none"> <li>• Network Design and Management</li> </ul>	3 (1 lab)		4318 (CH)	Install computer systems and networks		27
				4320 (CH)	Configure computer systems and networks		27
	<ul style="list-style-type: none"> <li>• Technopreneurship</li> <li>• Systems Analysis and Design</li> <li>• Software Engineering</li> <li>• Applied Operating Systems</li> <li>• Database Administration</li> <li>• Web Development</li> <li>• Multimedia Systems</li> <li>• Accounting Principles</li> </ul>						
d)	<b>IT ELECTIVE COURSES</b>		<b>12</b>				
	<ul style="list-style-type: none"> <li>• Electronics (with Technical Drawing)</li> </ul>			1202 (CH)	Prepare and interpret technical drawing	Technical Drawing	
				4201 (CH)	Use hand tools		
				4202 (CH)	Terminate and connect electrical wiring and electronics circuit		
	<ul style="list-style-type: none"> <li>• Network Administration and Maintenance</li> </ul>	3 (1 lab)		4321 (CH)	Diagnose and troubleshoot computer systems		27

			4319 (CH)	Maintain computer systems and networks		27
	<ul style="list-style-type: none"> <li>• Network Programming</li> <li>• Systems Programming</li> <li>• Analysis of Technical Requirements</li> <li>• Distributed Systems</li> <li>• E-business</li> <li>• Human Computer Interaction</li> <li>• Computer Security</li> <li>• Systems Integration</li> <li>• IT Project Management</li> <li>• or other relevant courses</li> </ul>					
e)	<b>FREE ELECTIVE COURSES</b>		<b>9</b>			
g)	<b>RECOMMENDED REQUIRED COURSES</b>		<b>12</b>			
	<ul style="list-style-type: none"> <li>• OJT</li> <li>• Capstone Project</li> </ul>	9 3				
	<b>TOTAL UNITS</b>		<b>147 (14)</b>			

### For Information Systems (IS)

	Information Systems (72)	Units	Total Units	Module	TVET Competencies	Performance & Range	Nominal Hrs.
b)	<b>IS CORE COURSES</b>		<b>18</b>				
	<ul style="list-style-type: none"> <li>• IS Fundamentals</li> <li>• Personal Productivity using IS</li> <li>• Fundamentals of Programming, Data and File Structures</li> <li>• Discrete Structures</li> <li>• Network and Internet Technology</li> <li>• Professional Ethics</li> </ul>				(See Office Productivity)		
c)	<b>IS PROFESSIONAL COURSES</b>		<b>33</b>				
	<ul style="list-style-type: none"> <li>• Fundamentals of Management and Business</li> <li>• Business Processes and Analysis of Business Performance</li> <li>• Accounting and Financial Systems</li> <li>• Management of Technology</li> <li>• Human Computer Interaction</li> <li>• Database Systems</li> <li>• Systems Analysis and Design</li> <li>• Systems Infrastructure and Integration</li> <li>• Applications Development</li> <li>• IT Project Management and Quality Assessment</li> <li>• Information Systems Planning</li> </ul>						
d)	<b>IS ELECTIVE COURSES</b>		<b>12</b>				
	<ul style="list-style-type: none"> <li>• Customer Relations Management</li> </ul>			1109 (A)	Lead workplace communication	Human and Enterprise	
				1110 (A)	Lead small teams	Resource Management	
				1111 (A)	Develop and practice negotiation skills	Must provide simulated workplace	



			1112 (A)	Solve problems related to work activities		
	• Digital Media Development (2D Digital Drawing and Animation)		3316 (A)	Produce key drawings for animation		40
			3313 (A)	Produce cleaned-up & in-betweened drawings		80
	• Digital Media Development (3D Digital Animation)		3320 (A)	Create 3D digital animation		240
	• Digital Media Development (Interactive Media)		3323 (A)	Use an authoring tool to create an interactive sequence		80
	• Applied Operating Systems • Networks • IT Resource Planning, Computer Security • Systems Administration • Network Administration • Supply Chain Management • Database Administration • Business Intelligence • Enterprise Resource Planning • or other relevant courses					
e)	<b>FREE ELECTIVE COURSES</b>		<b>9</b>			
g)	<b>RECOMMENDED REQUIRED COURSES</b>		<b>18</b>			
	• Deployment, Maintenance and Services • Evaluation of Business Performance • OJT • Capstone Project					
	<b>TOTAL UNITS</b> (Not to include Office Productivity)		<b>150</b> <b>(14)</b>			

**Sample program of study.** - Below are sample curricula for the BSCS, BSIT and BSIS.

**Sample Curriculum for the Bachelor of Science in Computer Science (BSCS) Program**

Student graduates with a PC Operations National Certificate II qualification after completing their first year, Programming National Certificate IV after their second year and Contact Center National Certificate II after their third year. Animation and Computer Hardware Servicing are not recommended for the BSCS program.

**FIRST YEAR**

**First Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
CS Fundamentals	CS101	3	2	1	None	5		
Computer Programming 1	CS102	3	2	1	None	5	P	Design program logic Apply program development approach
Algebra	GE101	3	3	0	None	3		
English 1	GE201	3	3	0	None	3	PC, P	Participate in workplace communication Utilize specialized communication

								skills
Social Science 1	GE301	3	3	0	None	3		
Natural Science 1	GE111	3	3	0	None	3		
Office Productivity	TVET101	3	2	1	None	7	PC	Operate a personal computer Perform Computer Operations Perform basic computer operation and internet navigation Operate a word-processing application Operate a spreadsheet application Operate a presentation package Use email and search the web using browsers
PE 1		(2)	(2)	0		(2)		
NSTP 1		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21</b> <b>(5)</b>	<b>18</b> <b>(5)</b>	<b>3</b>		<b>22</b> <b>(52)</b>		

### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Computer Programming 2	CS103	3	2	1	CS102	5	P	Design program logic Apply program development approach
Data Structures	CS201	3	3	0	CS102	3		
Trigonometry	GE102	3	3	0	GE101	3		
English 2 (Communications for IT)	GE202	3	3	0	GE201	3	PC, P	Participate in workplace communication Utilize specialized communication skills
Filipino 1	GE206	3	3	0	GE201	3		
Natural Science 2	GE112	3	3	0	GE111	3		
Quality Standards and Safety	TVET102	1.5	1.5	0	None	1.5	P	Practice occupational health and safety procedures Apply quality standards Promote environmental protection
Professional Development	TVET103	1.5	1.5	0	None	1.5	PC, P	Practice career professionalism Work in a Team Environment Develop teams and individuals Apply problem solving techniques Plan and organize work
PE 2		(2)	(2)	0		(2)		
NSTP 2		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21</b> <b>(5)</b>	<b>20</b> <b>(5)</b>	<b>1</b>		<b>23</b> <b>(5)</b>		

### SECOND YEAR

#### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Object Oriented Programming	CS211	3	2	1	CS103	5	P	Design program logic Apply object oriented programming skills
Design and Analysis of Algorithm	CS202	3	3	0	CS201	3		

Discrete Structures	CS104	3	3	0	GE101	3		
Calculus	CS210	3	3	0	GE102	3		
English 3	GE203	3	3	0	GE202	3		
Filipino 2	GE207	3	3	0	GE206	3		
PE 3		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>18</b>	<b>17</b>	<b>1</b>		<b>20</b>		
		<b>(2)</b>	<b>(2)</b>			<b>(2)</b>		

### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Database Systems	CS212	3	2	1	CS103	5	P	Apply programming skills in a second language
Programming Languages	CS203	3	2	1	CS103	5		
Automata and Language Theory	CS204	3	3	0	CS103	3		
Digital Design	CS206	3	3	0	GE102	3		
Probability and Statistics	GE103	3	3	0	GE102	3	P	Collect, analyze and organized information
Humanities 1	GE401	3	3	0	None	3		
PE 4		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>2</b>		<b>22</b>		

### THIRD YEAR

#### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Web Programming	CS213	3	2	1	CS212	5		
Modelling and Simulation	CS205	3	3	0	GE101	3		
Computer Organization and Assembly Language	CS105	3	2	1	CS206	5		
CS Elective 1	CS301	3	2	1	3rd Yr	5		
Social Science 2	GE302	3	3	0	None	3		
Humanities 2	GE402	3	3	0	None	3		
<b>TOTAL</b>		<b>18</b>	<b>15</b>	<b>3</b>		<b>24</b>		

#### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Software Engineering	CS214	3	2	1	CS211	5		
Operating Systems	CS207	3	2	1	CS105	5		
CS Elective 2	CS302	3	2	1	3rd Yr	5		
Free Elective 1	CS401	3	3	0	None	3		
Social Science 3	GE303	3	3	0	None	3		
Humanities 3	GE403	3	3	0	None	3		
<b>TOTAL</b>		<b>21</b>	<b>17</b>	<b>4</b>		<b>29</b>		

#### Summer

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Internship/OJT/Practicum	CS500	3	0	3	None	27		
<b>TOTAL</b>		<b>3</b>	<b>0</b>	<b>3</b>		<b>27</b>		<b>162 Hours Total</b>

**FOURTH YEAR**

**First Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Thesis 1	CS501	3	3	0	CS214	3		
Network Principles and Programming	CS208	3	2	1	CS207	5		
Professional Ethics	CS106	3	3	0	CS101	3		
CS Elective 3	CS302	3	2	1	None	5		
Social Science 4	GE304	3	3	0	None	3		
Social Science 5	GE405	3	3	0	None	3		
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>2</b>		<b>22</b>		

**Second Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Thesis 2	CS502	3	3	0	CS501	3		
CS Elective 4	CS304	3	2	1	None	5		
Free Elective 2	CS402	3	3	0	None	3		
Free Elective 3	CS403	3	3	0	None	3		
Contact Center	TVET104	3	2	1	None	5	CC	Deliver quality customer service Demonstrate understanding and knowledge for the American culture and geography
<b>TOTAL</b>		<b>12</b>	<b>11</b>	<b>1</b>		<b>14</b>		

<b>BSCS TOTAL</b>	<b>150</b> <b>(14)</b>	<b>130</b> <b>(14)</b>	<b>20</b>
-------------------	---------------------------	---------------------------	-----------

**Sample Curriculum for the Bachelor of Science in Information Technology (BSIT) Program**

Student graduates with a PC Operations National II qualification after completing their first year, Programming National Certificate IV after their second year, Contact Center National Certificate II after their third year and Computer Hardware Servicing National II qualifications on the Fourth year. Animation is not recommended for the BSIT program.

**FIRST YEAR**

**First Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
IT Fundamentals	IT101	3	2	1	None	5		
Programming I	IT102	3	2	1	None	5	P	Design program logic Apply program development approach
Algebra	GE101	3	3	0	None	3		
English I	GE201	3	3	0	None	3	PC, P	Participate in workplace communication Utilize specialized communication skills

Social Science 1	GE301	3	3	0	None	3		
Natural Science 1	GE111	3	3	0	None	3		
Office Productivity	TVET101	3	2	1	None	5	PC	Operate a personal computer Perform Computer Operations Perform basic computer operation and internet navigation Operate a word-processing application Operate a spreadsheet application Operate a presentation package Use email and search the web using browsers
PE 1		(2)	(2)	0		(2)		
NSTP 1		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21</b> <b>(5)</b>	<b>18</b> <b>(5)</b>	<b>3</b>		<b>27</b> <b>(5)</b>		

### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Programming 2	IT103	3	2	1	IT102	5	P	Design program logic Apply program development approach
Geometry in order to qualify for CH (Trigonometry)	GE102	3	3	0	GE101	3	CH	Perform mensuration and calculation
English 2 (Communications for IT)	GE202	3	3	0	GE201	3	PC, P	Participate in workplace communication Utilize specialized communication skills
Filipino 1	GE206	3	3	0	GE201	3		
Natural Science 2	GE112	3	3	0	GE111	3		
Humanities 1	GE401	3	3	0	None	3		
Quality Standards and Safety	TVET102	1.5	1.5	0	None	1.5	CH, PC, P	Practice occupational health and safety procedures Apply quality standards Promote environmental protection
Professional Development	TVET103	1.5	1.5	0	None	1.5	CH, PC, P	Practice career professionalism Work in a Team Environment Develop teams and individuals Apply problem solving techniques Plan and organize work
PE 2		(2)	(2)	0		(2)		
NSTP 2		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21</b> <b>(5)</b>	<b>20</b> <b>(5)</b>	<b>1</b>		<b>23</b> <b>(5)</b>		

### SECOND YEAR

#### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Computer Organization	IT105	3	2	1	IT103	5		
Object Oriented Programming	IT211	3	2	1	IT103	5	P	Design program logic Apply object oriented programming skills
Discrete Structures	IT104	3	3	0	GE101	3		
Accounting Principles	IT201	3	3	0	GE102	3		

English 3	GE203	3	3	0	GE202	3		
Filipino 2	GE207	3	3	0	GE206	3		
PE 3		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>2</b>		<b>22</b>		
		<b>(2)</b>	<b>(2)</b>			<b>(2)</b>		

### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Database Management System 1	IT212	3	2	1	IT211	5	P	Apply programming skills in a second language
Operating System Applications	IT202	3	3	0	IT105	3		
Network Management	IT203	3	2	1	IT105	5	CH	Install computer systems and networks Configure computer systems and networks
Systems Analysis and Design	IT204	3	2	1	GE102	5		
Probability and Statistics	GE103	3	3	0	GE101	3	P	Collect, analyze and organized information
Humanities 2	GE402	3	3	0	None	3		
PE 4		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>18</b>	<b>15</b>	<b>3</b>		<b>24</b>		
		<b>(2)</b>	<b>(2)</b>			<b>(2)</b>		

### THIRD YEAR

#### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Web Development	IT214	3	2	1	IT212	5		
Social Science 2	GE302	3	3	0	None	3		
Database Management Systems 2	IT213	3	2	1	IT212	5		
IT Elective 1 (Electronics with Technical Drawing)	IT301	3	2	1	None	5	CH	Use hand tools Terminate and connect electrical wiring and electronics circuit Prepare and interpret technical drawing
Social Science 3	GE303	3	3	0	None	3		
Humanities 3	GE403	3	3	0	None	3		
<b>TOTAL</b>		<b>18</b>	<b>15</b>	<b>3</b>		<b>21</b>		

#### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Software Engineering	IT205	3	2	1	IT204	5		
Multimedia Systems	IT215	3	2	1	IT214	5		
Technopreneurship	IT206	3	3	0	IT 13	3		
Professional Ethics	IT106	3	3	0	IT101	3		

IT Elective 2 (Network Administration and Maintenance)	IT302	3	2	1	None	5	CH	Diagnose and troubleshoot computer systems Maintain computer systems and networks
Free Elective 1	IT401	3	3	0	None	3		
Social Science 4	GE304	3	3	0	None	3		
<b>TOTAL</b>		<b>21</b>	<b>18</b>	<b>3</b>		<b>27</b>		

#### FOURTH YEAR

##### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	TOTAL HRS/WK	NC	TVET Competencies
Internship/OJT/Practicum	IT500	9	0	9	IT 11	27		
<b>TOTAL</b>		<b>9</b>	<b>0</b>	<b>9</b>		<b>27</b>		<b>Total of 486 Hours</b>

##### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	TOTAL HRS/WK	NC	TVET Competencies
Capstone Project	IT501	3	3	0	4 <sup>th</sup> yr	3		
IT Elective 3	IT303	3	2	1	None	5		
IT Elective 4	IT304	3	2	1	None	5		
Free Elective 2	IT402	3	3	0	None	3		
Free Elective 3	IT403	3	3	0	None	3		
Social Science 5	GE305	3	3	0	None	3		
Contact Center	TVET104	3	2	1	None	5	CC	Deliver quality customer service Demonstrate understanding and knowledge for the American culture and geography
<b>TOTAL</b>		<b>21</b>	<b>18</b>	<b>3</b>		<b>27</b>		

<b>BSIT TOTAL</b>
-------------------

<b>147</b>	<b>123</b>	<b>24</b>
<b>(14)</b>	<b>(14)</b>	



## Sample Curriculum for the Bachelor of Science in Information Systems (BSIS) Program

Student graduates with a PC Operations National II qualifications after completing their first year, Contact Center National Certificate II after their third year and Animation Programming National Certificate III after their fourth year. Programming and Computer Hardware Servicing are not recommended for the BSIS program.

### FIRST YEAR

#### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Fundamentals of Information Systems / Information Management	IS101	3	3	0	None	3		
Personal Productivity using IS	IS102	3	2	1	None	5	PC	Operate a personal computer Operate a word-processing application Operate a spreadsheet application Operate a presentation package Use email and search the web using browsers
Algebra	GE101	3	3	0	None	3	A	Use mathematical concepts and techniques
English 1	GE201	3	3	0	None	3	PC	Participate in workplace communication Utilize specialized communication skills
Natural Science 1	GE211	3	3	0	None	3		
Humanities 1	GE401	3	3	0	None	3		
Quality Standards and Safety	TVET102	1.5	1.5	0	None	1.5	A, CC, PC	Practice occupational health and safety procedures Apply quality standards Promote environmental protection
Professional Development	TVET103	1.5	1.5	0	None	1.5	CC, PC	Practice career professionalism Work in a Team Environment Develop teams and individuals Apply problem solving techniques Plan and organize work
PE 1		(2)	(2)	0		(2)		
NSTP 1		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21 (5)</b>	<b>20 (5)</b>	<b>1</b>		<b>25 (5)</b>		

#### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Human Computer Interaction	IS211	3	3	0	None	3		
Fundamentals of Programming, Data, File and Object Structures	IS103	3	2	1	None	5		
Introduction to the IM Profession and Ethics	IS106	3	3	0	None	3		
Fundamentals of Business and Management	IS201	3	3	0	None	3		
Trigonometry	GE102	3	3	0	GE101	3		
English 2	GE202	3	3	0	GE201	3	PC	Participate in workplace communication Utilize specialized communication skills
Natural Science 2	GE212	3	3	0	GE211	3		
PE 2		(2)	(2)	0		(2)		

NSTP 2		(3)	(3)	0		(3)		
<b>TOTAL</b>		<b>21</b>	<b>20</b>	<b>1</b>		<b>23</b>		
		<b>(5)</b>	<b>(5)</b>			<b>(5)</b>		

## SECOND YEAR

### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Systems Analysis and Design	IS213	3	2	1	IS211	5		
Database Systems	IS212	3	2	1	IS103	5		
System Infrastructure and Integration	IS214	3	3	0	IS103	3		
Business Processes	IS202	3	3	0	IS201	3		
Discrete Structure	IS104	3	3	0	GE101	3		
Filipino 1	GE206	3	3	0	GE201	3		
English 3	GE203	3	3	0	GE202	3		
PE 3		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>21</b>	<b>19</b>	<b>1</b>		<b>25</b>		
		<b>(2)</b>	<b>(2)</b>			<b>(2)</b>		

### Second Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Applications Development	IS215	3	2	1	IS212-213	5		
Networks and Internet Technology	IS105	3	2	1	IS214	5		
Accounting and Financials	IS203	3	3	0	IS202	3		
Probability and Statistics	GE103	3	3	0	GE101	3		
Filipino 2	GE207	3	3	0	GE206	3		
Social Science 1	GE301	3	3	0	None	3		
Social Science 2	GE302	3	3	0	None	3		
PE 4		(2)	(2)	0		(2)		
<b>TOTAL</b>		<b>21</b>	<b>19</b>	<b>2</b>		<b>25</b>		
		<b>(2)</b>	<b>(2)</b>			<b>(2)</b>		

## THIRD YEAR

### First Semester

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Project Management and Quality Systems	IS217	3	3	0	IS215	3		
Deployment, Maintenance and Services	IS216	3	3	0	IS215	3		
Evaluation of Business Performance	IS204	3	3	0	IS203	3		

IS Elective 1 (2D Digital Drawing and Animation)	IS301	3	2	1	3rd Yr	5	A	Produce key drawings for animation Produce cleaned-up & in-betweened drawings
IS Elective 2 (Human and Enterprise Resource Management)	IS302	3	3	0	None	3	A	Lead workplace communication Lead small teams Develop and practice negotiation skills Solve problems related to work activities
Social Science 3	GE303	3	3	0	None	3		
Humanities 2	GE402	3	3	0	None	3		
<b>TOTAL</b>		<b>21</b>	<b>20</b>	<b>1</b>		<b>23</b>		

**Second Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Information Systems Planning	IS218	3	3	0	IS216	3		
Management of Technology	IS205	3	3	0	None	3		
IS Elective 3 (3D Digital Animation)	IS303	3	2	1	None	5	A	Create 3D digital animation
IS Elective 4 (Interactive Media)	IS304	3	2	1	None	5	A	Use an authoring tool to create an interactive sequence
Free Elective 1	IS401	3	3	0	None	3		
Social Science 4	GE304	3	3	0	None	3		
<b>TOTAL</b>		<b>18</b>	<b>16</b>	<b>2</b>		<b>22</b>		

**FOURTH YEAR**

**First Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Internship/OJT/Practicum	IS500	9	0	9	IS218	27		
<b>TOTAL</b>		<b>9</b>	<b>0</b>	<b>0</b>		<b>27</b>		<b>Total of 486 Hours</b>

**Second Semester**

DESCRIPTIVE TITLE	COURSE CODE	TOTAL UNITS	LEC UNITS	LAB UNITS	Pre-REQ.	HRS/WK	NC	TVET Competencies
Capstone Project	IS501	3	3	0	IS500	3		
Free Elective 2	IS402	3	3	0	None	3		
Free Elective 3	IS403	3	3	0	None	3		
Social Science 5	GE305	3	3	0	None	3		
Humanities 3	GE403	3	3	0	None	3		
Contact Center	TVET104	3	2	1	None	5	CC	Deliver quality customer service Demonstrate understanding and knowledge for the American culture and geography
<b>TOTAL</b>		<b>18</b>	<b>17</b>	<b>1</b>		<b>20</b>		

**BSIS TOTAL**

<b>150</b>	<b>131</b>	<b>19</b>
<b>(14)</b>	<b>(14)</b>	

**ARTICLE III –  
REPEALING AND EFFECTIVITY CLAUSE**

**Section 5.** Repealing Clause. All pertinent rules and regulations or parts thereof that are inconsistent with the provisions of these policies and standards are hereby repealed or modified accordingly.

**Section 6.** Effectivity Clause. This CMO shall take effect after publication in the Official Gazette or in a newspaper of general circulation.

Pasig City, Philippines May 12, 2008.

FOR THE COMMISSION:

  
**ROMULO L. NERI**  
Chairman