PROGRAM DESCRIPTION

The Bachelor of Science in Computer Science program is designed to provide outcome-based training in computing that is not only nationally accredited but also globally competitive and to produce graduates who will be professionally competent, morally upright, and socially responsible contributors to national development.

The BSCS program is a study of concepts and theories, algorithmic foundations, implementation and application of information and computing solutions. It prepares students to be IT professional and researches and to be proficient in designing and developing computing solutions.

The curriculum is based on the standards set by the Commission on Higher Education (CHED) and is benchmarked from the curricula of leading academic institutions, national and international, offering similar business programs and addresses the needs of the industry.

PROGRAM OBJECTIVES

The program leading to the degree of Bachelor of Science in Computer Science has the following objectives:

1. To enable students to obtain a comprehensive knowledge of computer science and deep understanding of the field of information and communications technology.
2. To prepare students to be proficient in designing and developing computing solutions.
3. To enable students to acquire the theoretical and practical skills needed to be globally competitive computer scientists.
4. To enable students to get a broad liberal education in the arts and letters, social sciences and philosophy, natural science and mathematics.
5. To enable students to develop the cultural sensitivity, ethical responsibility, and social consciousness needed to become upright citizens of the Philippines and the world.

CAREER PATH

- Computer Scientist
- Systems and Software Engineer
- Software Developer
- Multimedia Authoring Specialist/Programmer
- Computer Animation Experts
- Robotics Technology Specialist
- Computer Science Instructor
- Applications Developer
- Database Programmer/Designer
- Information Security Specialist
- Quality Assurance Specialist
- Researcher
- Systems Developer
- Systems Analyst

PROGRAM STRUCTURE

FIRST YEAR ATTENDANCE

First Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
ENGL	101	Communication Skills 1	3	0	3	
MATH	101	College Algebra	3	0	3	
MATH	110	College Trigonometry	3	0	3	
CS	101	Introduction to Computing	2	1	3	
COMP	101	Knowledge Work Software and Presentation Skills	2	1	3	
ETHNS	101	Euthenics 1	1		(1)	
					15	

Second Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
ENGL	102	Communication Skills 2	3	0	3	ENGL-101
PSYC	101	General Psychology	3	0	3	
FILI	101	Komunikasyon sa Akademikong Filipino	3	0	3	
MATH	213	Calculus with Analytic Geometry 1	3	0	3	MATH-101; MATH-110
CS	201	Computer Programming 1	2	1	3	CS-101
COMP	111	Introduction to Information Systems	2	1	3	COMP-101
ETHNS	102	Euthenics 2	1		(1)	
					18	

Third Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
ENGL	201	Speech Communication 1	3	0	3	ENGL-102
FILI	102	Pagbasa at Pagsulat Tungo sa Pananaliksik	3	0	3	FILI-101
PSCI	101	Philippine History, Politics, Governance & Constitution	3	0	3	
MATH	214	Calculus with Analytic Geometry 2	4	0	4	MATH-213
NSCI	101	General Chemistry	3	1	4	
COMP	121	Introduction to the World Wide Web	2	1	3	COMP-111
PHYED	101	Physical Fitness	2	0	(2)	
					20	

SECOND YEAR ATTENDANCE

First Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
ENGL	301	Technical, Scientific and Business English	3	0	3	ENGL-102
ECON	101	Principles of Economics with Agrarian Reform & Taxation	3	0	3	
SSCI	101	Society & Culture with FP/DA & Prevn/HIV/SARS Prevn	3	0	3	
MATH	215	Calculus with Analytic Geometry 3	4	0	4	MATH-214
COMP	133	Current Trends in IT (MECHA)	2	1	3	COMP-121
CS	202	Computer Programming 2	2	1	3	CS-201
PHYED	111	Rhythmic Activities	2	0	(2)	
NSTP	101	National Service Training Program 1			(3)	
					19	

Second Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
HUMA	111	Art Appreciation	3	0	3	
ENGL	311	Philippine Literature	3	0	3	
MATH	200	Statistics and Probability	3	0	3	MATH-101; 2nd year standing
CS	302	Object - Oriented Programming	2	1	3	CS-201
CS	301	Computer Programming 3 (Web Programming & Dev't)	2	1	3	CS-202
CS	332	Computer System Org., Archtr. & Assembly Lang. Prog.	2	1	3	CS-202
MATH	232	Discrete Structures 1	3	0	3	MATH-213
PHYED	121	Individual/Dual Sports	2	0	(2)	
NSTP	102	National Service Training Program 2			(3)	
					21	

Third Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
HUMA	101	Philosophy of Man	3	0	3	
NSCI	111	College Physics 1	3	1	4	MATH-101; MATH-110
CS	321	Data Structures & Algorithm Analysis	3	1	4	CS-201
MATH	233	Discrete Structures 2	3	0	3	MATH-232
CS	377	Application Lifecycle Management (HP) (Free Elective 1)	2	1	3	CS-201
		CS Major Elective 1			3	
PHYED	131	Team Sports	2	0	(2)	
					20	

THIRD YEAR ATTENDANCE

First Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
IT	211	Data Communications and Networking 1 (CISCO)	2	1	3	3rd Year Standing
CS	311	Principles of Programming Languages with Compiler	2	1	3	CS-321
CS	312	Automata and Formal Language Theory	3	0	3	MATH-233
CS	372	Introduction to Software Engineering	2	1	3	CS-332
CS	361	Algorithm Analysis and Design	3	0	3	MATH-233
CS	378	Load Testing (HP) (Free Elective 2)	2	1	3	CS-377
		CS Major Elective 2			3	
					21	

Second Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
RSCH	400	Research 1A	3	0	3	3rd Year Standing
SSCI	111	Life & Works of Jose Rizal	3	0	3	
CS	342	Principles of Operating Systems and its Applications	2	1	3	CS-332
CS	351	Database Management System 1 (Oracle 10g Admin 1)	2	1	3	CS-302
CPE	202	Logic Design & Digital Computer Circuits	2	1	3	CS-321
CS	379	Unified Functional Testing (HP) (Free Elective 3)	2	1	3	CS-378
		CS Major Elective 3			3	
					21	

Third Trimester

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	362	Modeling and Simulation	2	1	3	CS-321
CS	411	Professional Ethics in IT	3	0	3	4th Year Standing
CS	421	CS Practicum (minimum: 162 hours)	0	3	3	RSCH-400
CS	401	CS Thesis	3	0	3	RSCH-400
		CS Major Elective 4			3	
					15	

Total Academic Units **170**

LIST OF RECOMMENDED MAJOR ELECTIVES PER PLAN *(SPECIALIZATION TRACK)*

A. Systems and Software Engineering (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	373	Software Design	2	1	3	2nd Year Standing
CS	374	Software Verification and Validation	2	1	3	CS-373
CS	375	Software Evolution (Maintenance)	2	1	3	CS-374
CS	376	Software Process & Quality	2	1	3	CS-375

B. Software Development Plan (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	303	Computer Programming 4 (Mobile Programming)	2	1	3	CS-201
CS	304	Computer Programming 5 (XML in the .NET Framework)	2	1	3	CS-202
CS	305	Computer Programming 6 (Microsoft ADO.NET)	2	1	3	CS-202
CS	306	Computer Programming 7 (Microsoft SQL Server 2005 DB)	2	1	3	CS-202

C. Game Development (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	386	2D Game Art Development	2	1	3	2nd Year Standing
CS	387	3D Game Art Development	2	1	3	CS-386
CS	388	Game Engine Programming 1 (Game Platform)	2	1	3	CS-302; 3rd Year Standing
CS	389	Game Engine Programming 2	2	1	3	CS-388

LIST OF RECOMMENDED MAJOR ELECTIVES PER PLAN *(SPECIALIZATION TRACK)*

D. Mobile Applications Development (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	366	Mobile Programming 1	2	1	3	CS-302
CS	368	Mobile Applications Design and Development	2	1	3	CS-302
CS	367	Mobile Programming 2	2	1	3	CS-302;CS-366
CS	369	Mobile Web Design and Development	2	1	3	CS-302;CS-368

E. Service Management Specialization (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
SM	301	Service Culture	3	0	3	ENGL-301;
SM	311	Principles of System Thinking	3	0	3	ENGL-301;SM-301
SM	321	Fundamentals of Business Process Outsourcing 1	3	0	3	ENGL-301; SM-301
SM	322	Fundamentals of Business Process Outsourcing 2	3	0	3	ENGL-301; SM-301; SM-321
SM	500	SM Internship (min of 600 hours)*	0	6	6	SM-311;SM-322

***NOTE:**
Students who choose to tale the Service Management Specialization Track must enroll CS421 (CS Practicum) and complete minimum of 162 OJT hours in the Business Process Outsourcing industry.

F. Business Analytics (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
BA	301	Fundamentals of Business Analytics	2	1	3	MATH-213;CS-201,CS-301
BA	311	Fundamentals of Analytics Modeling	2	1	3	CS-402;BA-301
BA	321	Analytics Techniques and Tools	2	1	3	CS-402;BA-301
BA	331	Analytics Application	2	1	3	BA-311;BA-321
BA	500	Analytics Internship (min of 480 hours)*			6	BA-331

***NOTE:**
Students who choose to tale the Business Analytics Specialization Track must enroll CS421 (CS Practicum) and complete minimum of 162 OJT hours utilizing Business Analytics.

G. Digital Arts (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
DA	102	Illustration	2	1	3	COMP-101
DA	103	Visual Graphics Design	2	1	3	DA-102

CS	388	2D/3D Game Art Development	2	1	3	DA-103
CS	393	2D/3D Digital Animation	2	1	3	CS-388

LIST OF RECOMMENDED MAJOR ELECTIVES PER PLAN *(SPECIALIZATION TRACK)*

H. Computer Animation Plan (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	391	Screen Writing	3	0	3	COMP-101; 2nd Year Standing
CS	392	Audio and Video Production	2	1	3	CS-391
CS	393	2D/3D Digital Animation	2	1	3	CS-391
CS	394	Animation Project	2	1	3	CS-393

I. Multimedia Arts Plan (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
CS	381	Introduction to Multimedia	2	1	3	COMP-101; 2nd Year Standing
CS	383	Digital Imaging	2	1	3	CS-381
CS	384	Multimedia Communication Systems	3	0	3	CS-383
CS	385	Multimedia Sound and Video	2	1	3	CS-384

J. Network Administration Plan (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
IT	212	Data Communications and Networking 2	2	1	3	IT-211
IT	213	Data Communications and Networking 3	2	1	3	IT-212
IT	214	Data Communications and Networking 4	2	1	3	IT-213
IT	312	Network Security	2	1	3	IT-211

K. Robotics Plan (Specialization)

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
MECH	101	Pneumatics & Hydraulics Technology, Design & Control	2	1	3	NSCI-112; 2nd Year Standing
MECH	201	Programmable Logic Controller	2	1	3	MECH-101; CS-201
MECH	301	Robotics Technology	2	1	3	MECH-101; MECH-201
MECH	311	Modular Production System	2	1	3	MECH-201; MECH-301

LIST OF RECOMMENDED FREE ELECTIVES

SUBJECT AREA	CAT. NO.	COURSE TITLE	LEC UNIT(S)	LAB UNIT(S)	UNIT(S)	PRE-REQUISITES
ACTG	100	Fundamental of Accounting Theory & Practice 1A (SAP)	2	1	3	MATH-101
BA	101	Fundamentals of Business and Management	3	0	3	
BA	201	Business Processes	3	0	3	BA-101
MGT	101	Principles of Management	3	0	3	
ENTR	101	Entrepreneurship	3	0	3	3rd Year Standing
CS	352	Database Management System 2 (Oracle 10g Admin 2)	2	1	3	CS-351
IS	201	Human Computer Interaction	3	0	3	CS-201
IS	301	System Infrastructure and Integration	3	0	3	CS-201
CS	377	Application Lifecycle Management (HP) (Free Elective 1)	2	1	3	CS-201
CS	378	Load Testing (HP) (Free Elective 2)	2	1	3	CS-377
CS	379	Unified Functional Testing (HP) (Free Elective 3)	2	1	3	CS-378

COMPARISON WITH CHED MINIMUM REQUIREMENT

CHED MINIMUM REQUIREMENT		AMACU COURSES			
CHED COURSE TITLE	**CREDIT UNITS**	**SUBJ AREA**	**CAT. NO.**	**AMACU COURSE TITLE**	**CREDIT UNITS**
A. GENERAL EDUCATION					
Languages and Humanities	**24**				**27**
English	***9***				**12**
1. Communication Skills		ENGL	101	Communication Skills 1	3
		ENGL	102	Communication Skills 2	3
2. Technical Writing / Presentation Skills		ENGL	201	Speech Communication 1	3
		ENGL	301	Technical, Scientific and Business English	3
Filipino	***6***				**6**
		FILI	101	Komunikasyon sa Akademikong Filipino	3
		FILI	102	Pagbasa at Pagsulat Tungo sa Pananaliksik	3
Humanities (Literature, Arts, Philosophy)	***9***				**9**
		ENGL	311	Philippine Literature	3
		HUMA	101	Philosophy of Man	3
		HUMA	111	Art Appreciation	3
Mathematics, Natural Sciences Technology	**15**				**17**
Mathematics	***6***				**6**
		MATH	101	College Algebra	3
		MATH	110	College Trigonometry	3
Natural Sciences	***6***				**8**
		NSCI	101	General Chemistry	4
		NSCI	111	College Physics 1	4
Electives (Math, Nat Science, Tech, etc.)	***3***				**3**
1. Probability / Statistics		MATH	200	Statistics and Probability	3
Social Sciences and Communications	**15**				**15**
1. Psychology		PSYC	101	General Psychology	3
2. Phil Hist & Culture; Pol & Gov (w/ Cons)		PSCI	101	Phil History, Politics, Governance & Consti	3
3. Society& Culture (with Family Planning)		SSCI	101	Society & Culture w/ FP,DA & HIV/SARS Prev'n	3
4. Economics (with Tax & Agr'n Reform Int)		ECON	101	Prin. of Econ. w/ Agrarian Reform & Taxation	3
5. Life & Works of Rizal/Asian/Western Civil		SSCI	111	Life & Works of Jose Rizal	3
B. BASIC ITE CORE COURSES	**18**				**33**
1. CS Fundamentals	3	CS	101	Introduction to Computing	3
		COMP	101	Knowledge Work Software and Pres'n Skills	3
		COMP	111	Introduction to Information System	3
		COMP	133	Currents Trends in IT	3
2. Discrete Structures	3	MATH	232	Discrete Structures 1	3
		MATH	233	Discrete Structures 2	3
3. Computer Programming 1	3	CS	201	Computer Programming 1	3
4. Computer Org & Assembly Lang	3	CS	332	Comp Org, Archi & Assembly Lang. Progg.	3

CHED MINIMUM REQUIREMENT		AMACU COURSES			
CHED COURSE TITLE	**CREDIT UNITS**	**SUBJ AREA**	**CAT. NO.**	**AMACU COURSE TITLE**	**CREDIT UNITS**
5. Network Principles and Programming	3	COMP	121	Introduction to the World Wide Web	3
		IT	211	Data Communications and Networking 1	3
6. Professional Ethics	3	CS	411	Professional Ethics in IT	3
C. ITE PROFESSIONAL COURSES	**33**				**57**
1. Calculus	3	MATH	213	Calculus with Analytic Geometry 1	3
		MATH	214	Calculus with Analytic Geometry 2	4
		MATH	215	Calculus with Analytic Geometry 3	4
2. Computer Programming 2	3	CS	202	Computer Programming 2	3
3. Data Structures	3	CS	321	Data Structures & Algorithm Analysis	4
4. Object Oriented Programming	3	CS	302	Object - Oriented Programming	3
5. Design and Analysis of Algorithms	3	CS	361	Algorithm Analysis and Design	3
6. Database Systems	3	CS	351	Database Management System 1	3
7. Programming Languages	3	CS	342	Principles of Programming Languages w/ Compiler	3
8. Automata and Language Theory	3	CS	312	Automata and Formal Language Theory	3
9. Digital Designs	3	CPE	202	Logic Design & Digital Computer Circuits	3
10. Web Programming	3	CS	301	Computer Programming 3 (Web Progg & Dev't)	3
11. Modeling and Simulation	3	CS	362	Modeling and Simulation	3
12. Software Engineering	3	CS	372	Introduction to Software Engineering	3
13. Principles of Operating Systems	3	CS	342	Principles of Operating Systems and its Apps	3
14. Internship/OJT/Practicum	3	CS	421	CS Practicum (minimum: 162 hours)	3
15. Thesis 1	3	CS	401	CS Thesis	3
		RSCH	400	Research 1A	3
D. ITE MAJOR ELECTIVES	**12**				**12**
				CS Major Elective 1	3
				CS Major Elective 2	3
				CS Major Elective 3	3
				CS Major Elective 4	3
E. ITE FREE ELECTIVES	**9**				**9**
				Free Elective 1	3
				Free Elective 2	3
				Free Elective 3	3
F. MISCELLANY COURSES	**14**				**(16)**
Physical Education	**8**	PHYED	101	Physical Fitness	(2)
		PHYED	111	Rhythmic Activities	(2)
		PHYED	121	Individual/Dual Sports	(2)
		PHYED	131	Team Sports	(2)
National Service Training Program	**6**	NSTP	101	National Services Training Program 1	(3)
		NSTP	102	National Services Training Program 2	(3)
		ETHNS	101	Euthenics 1	(1)
		ETHNS	102	Euthenics 2	(1)
TOTAL ACADEMIC UNITS:	**140**				**170**