



CURRICULUM INFORMATION AND COURSE CONTENTS

Bachelor of Science in Computer Engineering

This course deals with the design, analysis and applications of computing structures involving hardware, software or both. Students are provided strong foundations in basic physical and engineering sciences. They are expected to gain knowledge and skills in basic electric circuits and electronics, microcontrollers, logic circuits and microprocessors, communications and networking, interfacing and software systems.

Aside from the core courses, the students are trained and exposed to On-line Technologies, Microelectronics, and Embedded Systems. The curriculum provides integration of CISCO Networking, AUTOCAD 2000, Electronic Workbench, circuit prototyping and others.

A student who completes the first three years of the curriculum is granted a certificate, Associate in Computer Engineering.

COLLEGE OF COMPUTER ENGINEERING
UNIVERSITY OF CEBU
BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

REVISED CURRICULUM
(Effective SY 2007-2008)

COURSE	DESCRIPTIVE TITLE	LEC	HOURS		PRE-REQUISITE	CO-REQUISITE
			LAB	UNITS		
<u>FIRST YEAR</u>						
1st Semester						
MATH 1	College Algebra	3		3		
MATH 15	Plane Trigonometry	3		3		
ES 1A	Engg. Drawing with CAD 1		6	2		
CPE 1	Computer Orientation, lec	3		3		CPE 1L
CPE 1L	Computer Orientation, lab		3	1		CPE 1
CHEM 1A	Gen. Chemistry 1, lec	3		3		CHEM 1AL
CHEM 1AL	Gen. Chemistry 1, lab		3	1		CHEM 1A
ENGL 1	Study & Thinking Skills	3		3		
ENGL 1H	Remedial Instruction in Grammar	(3)		(3)		
PE 1	Physical Education 1			2		
CWTS 1	Civic Welfare Training Service 1			3		
		15	12	24		
2nd Semester						
MATH 1B	Advanced Algebra	3		3		
MATH 17E	Analytic Geometry	3		3	Math 1/ Math 15	
ES 2A	Engg. Drawing with CAD 2		6	2	ES 1A	
ENGL 2	Writing in the Discipline	3		3	Engl 1	
CPE 2	Computer Programming, lec	3		3	CPE 1 lec/ lab	CPE 2L
CPE 2L	Computer Programming, lab		3	1	CPE 1 lec/ lab	CPE 2
PHYS 1A	College Physics 1, lec	3		3	Math 1/ Math 15	PHYS 1AL
PHYS 1AL	College Physics 1, lab		3	1	Math 1/ Math 15	PHYS 1A
PE 2	Physical Education 2			2	PE 1	
CWTS 2	Civic Welfare Training Service 2			3	CWTS 1	
		15	12	24		
<u>SECOND YEAR</u>						
1st Semester						
MATH 13	Solid Mensuration & Sph. Trigo	3		3	Math 1B/Math 15	
MATH 18	Differential Calculus	4		4	Math 1B/Math 17E	
PHYS 2A	College Physics 2, lec	3		3	Phys 1A lec/ lab	PHYS 2AL
PHYS 2AL	College Physics 2, lab		3	1	Phys 1A lec/ lab	PHYS 2A
ENGL 24	Technical Writing	3		3	Engl 2	
CPE 3	Data Struc. Algo. Analysis, lec	3		3	CPE 2 lec/ lab	CPE 3L
CPE 3L	Data Struc. Algo. Analysis, lab		3	1	CPE 2 lec/ lab	CPE 3
FIL 1	Sining ng Pakikipagtalastasan	3		3		
Econ 1	Basic Econ.w/ Taxation & Land Reform	3		3		
PE 3	Physical Education 3			2	PE 2	
		22	6	26		
2nd Semester						
MATH 19	Integral Calculus	4		4	Math 18/Math 13	
MATH 21	Probability & Statistics	3		3	Math 1/Math 1B	
CPE 4	Structure of Prog. Lang., lec	3		3	CPE 3 lec/ lab	CPE 4L
CPE 4L	Structure of Prog. Lang., lab		3	1	CPE 3 lec/ lab	CPE 4
CPE 5	Computer Hardware Fundamentals		3	1	CPE 1 lec/lab	
CPE 6	Basic Ckt. 1, lec	3		3	Phys 2A/ Math 26	CPE 6L
CPE 6L	Basic Ckt. 1, lab		3	1	Phys 2A/ Math 26	CPE 6
ES 8A	Engg Economy	3		3	2nd Year Standing	
ENGL 3	Speech Communication	3		3	Engl 2	
FIL 2	Pagbasa at Pagsulat	3		3	Fil 1	
PE 4	Physical Education 4			2	PE 3	
		22	9	27		
<u>THIRD YEAR</u>						
1st Semester						
MATH 26	Differential Equations	3		3	Math 19	
MATH 38	Discrete Mathematics	3		3	Math 1/Math 1B/ CPE 1	
ES 3	Engg. Mechanics	5		5	Math 19	
CPE 7	Comp Troubleshooting		6	2	Third Year Standing	
CPE 8	Basic Ckt. 2, lec	3		3	CPE 6	CPE 8L
CPE 8L	Basic Ckt. 2, lab		3	1	CPE 6	CPE 8
CPE 9	Electronics 1, lec	3		3	CPE 6	CPE 9L
CPE 9L	Electronics 1, lab		3	1	CPE 6	CPE 9
ES 9	Engg Mgt	3		3	Third Year Standing	
		20	12	24		

2nd Semester

MATH 57	Adv. Engg. Math w/ Numerical Methods	3		3	Math 26	
ES 4A	Strength of Materials	3		3	ES 3	
CPE 10	Comp. Syst. Org. & Assy. Lang, lec	3		3	CPE 2	CPE 10L
CPE 10L	Comp. Syst. Org. & Assy. Lang, lab		3	1	CPE 2	CPE 10
CPE 11	Logic Ckt. Des. & Swtchg. Theory, lec	3		3	CPE 6 lec/ lab	CPE 11L
CPE 11L	Logic Ckt. Des. & Swtchg Theory, lab		3	1	CPE 6 lec/ lab	CPE 11
CPE 12	Safety Engg & Environmental Mgt	3		3	CHEM 1A lec/lab	
CPE 13	Electronics 2, lec	3		3	CPE 9	CPE 13L
CPE 13L	Electronics 2, lab		3	1	CPE 9	CPE 13
CPE 14	Technopreneurship	2		2		
CPE 15	Engg. Ethics and Computer Laws	2		2		
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		22	9	25		

Students who have successfully completed the first three years of this curriculum shall be granted the title, "Associate in Computer Engineering".

FOURTH YEAR

1st Semester

CPE 16	Digital Signal Processing, lec	3		3	Math 57	CPE 16L
CPE 16L	Digital Signal Processing, lab		3	1	Math 57	CPE 16
CPE 17	Adv. Logic Ckt. Design with VHDL, lec	3		3	CPE 11 lec/ lab	CPE 17L
CPE 17L	Adv. Logic Ckt. Design with VHDL, lab		6	2	CPE 11 lec/ lab	CPE 17
CPE 18	Principles of Communications	3		3	CPE 13	
CPE 19	Control Systems	3		3	CPE 13/ CPE 8	CPE 19L
CPE 19L	Control Systems		3	1	CPE 13/ CPE 8	CPE 19
CPE 20	Computer System Architecture	3		3	CPE 10	
HIST 1	Phil. History	3		3		
PSYCH 1	Psychology 1	3		3		
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		21	12	25		

2nd Semester

CPE 21	Operating Systems, lec	3		3	CPE 10	CPE 21L
CPE 21L	Operating Systems, lab		3	1	CPE 10	CPE 21
CPE 22	Microprocessors , lec	3		3	CPE 17/ CPE 20	CPE 22L
CPE 22L	Microprocessors , lab		3	1	CPE 17 CPE 20	CPE 22
CPE 23	Data Communications	3		3	CPE 18	
CPE 24	Project Management	2		2	4 th Year Standing	
CPE 25	Test and Quality Assurance	2		2	4 th Year Standing	
CPE 26	Theory of Computing	3		3	MATH 38/ CPE 4 lec/lab	
HUM 1	Art Appreciation	3		3		
ELECT 1	Elective Subject 1	3		3		
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		22	6	24		

FIFTH YEAR

1st Semester

CPE 27	Computer Networks , lec	3		3	CPE 23	CPE 27L
CPE 27L	Computer Networks, lab		3	1	CPE 23	CPE 27
CPE 28	Software Engineering, lec	3		3	Fifth Year Standing	CPE 28L
CPE 28L	Software Engineering, lab		3	1	Fifth Year Standing	CPE 28
CPE 29	Project Design 1	3		3	Fifth Year Standing	
CPE 30	I/O Memory Systems	3		3	CPE 22	
ELECT 2	Elective Subject 2	3		3		
PHILO 2	Logic	3		3		
POL SCI 6	Pol. & Govnce. with the Phil. Const.	3		3		
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		21	6	23		

2nd Semester

CPE 31	Project Design 2		6	2	Graduating Student	
CPE 32	Seminars and Field Trips	1		1	Graduating Student	
CPE 33	On-the-Job Training		18	6	Graduating Students	
ELECT 3	Elective Subject 3	3		3		
RIZAL	Life & Works of Dr. Jose Rizal	3		3		
SOCIO 1	Soc. & Culture w/ Family Planning	3		3		
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		10	24	18		

POSSIBLE ELECTIVES (9 UNITS):

1. On-Line Technology
2. Microelectronics
3. Embedded Systems
4. Cisco Module 4
5. CCNA Review Preparation

For the student to complete CISCO Track:

- | | | |
|------------------|---|------------|
| CCNA 1 | - | CPE 18 |
| CCNA 2 | - | CPE 23 |
| CCNA 3 | - | CPE 27 |
| CCNA 4 | - | Elective 1 |
| CCNA Exam Review | - | Elective 2 |

CURRICULUM SUMMARY

	COURSE	MINIMUM NO. OF HOURS		UNITS
		LEC	LAB	
I. TECHNICAL COURSES				
A. Mathematics				
MATH 1	College Algebra	3	0	3
MATH 15	Plane Trigonometry	3	0	3
MATH 1B	Advanced Algebra	3	0	3
MATH 17E	Analytic Geometry	3	0	3
MATH 13	Solid Mensuration & Sph. Trigo	3	0	3
MATH 18	Differential Calculus	4	0	4
MATH 19	Integral Calculus	4	0	4
MATH 21	Probability & Statistics	3	0	3
MATH 26	Differential Equations	3	0	3
MATH 38	Discrete Mathematics	3	0	3
MATH 57	Adv. Mathematics w/ Numerical Methods	3	0	3
	Sub-Total	35	0	35
B. Natural/ Physical Sciences				
CHEM 1A	General Chemistry	3	3	4
PHYS 1A	College Physics 1	3	3	4
PHYS 2A	College Physics 2	3	3	4
	Sub-Total	9	9	12
C. Basic Engineering Sciences				
ES 1A	Engg. Drawing w/ CAD 1	0	6	2
ES 2A	Engg. Drawing w/ CAD 2	0	6	2
ES 3	Engg. Mechanics	5	0	5
ES 4A	Strength of Materials	3	0	3
ES 8A	Engg. Economy	3	0	3
ES 9	Engg. Management	3	0	3
CPE 12	Safety Engg. & Environmental Management	3	0	3
	Sub-Total	17	12	21
D. Allied Courses				
CPE 6	Basic Circuits 1	3	3	4
CPE 8	Basic Circuits 2	3	3	4
CPE 9	Electronics 1	3	3	4
CPE 13	Electronics 2	3	3	4
	Sub- Total	12	12	16
E. Professional Courses				
CPE 1	Computer Orientation	3	3	4
CPE 2	Computer Programming	3	3	4
CPE 3	Data Structures and Algo Analysis	3	3	4
CPE 4	Structure of Programming Languages	3	3	4
CPE 5	Computer Hardware Fundamentals		3	1
CPE 7	Computer Troubleshooting		6	2
CPE 10	Computer Systems Org. and Assembly Language	3	3	4
CPE 11	Logic Circuit Design & Swtchnng. Theory	3	3	4
CPE 14	Technopreneurship	2	0	2
CPE 15	Engg. Ethics and Computer Laws	2	0	2
CPE 16	Digital Signal Processing	3	3	4
CPE 17	Adv. Logic Circuit Design w/ VHDL	3	6	5

	COURSE	MINIMUM NO. OF HOURS		UNITS
		LEC	LAB	
CPE 18	Principles of Communications	3	0	3
CPE 19	Control Systems	3	3	4
CPE 20	Computer System Architecture	3	0	3
CPE 21	Operating Systems	3	3	4
CPE 22	Microprocessors	3	3	4
CPE 23	Data Communications	3	0	3
CPE 24	Project Management	2	0	2
CPE 25	Test and Quality Assurance	2	0	2
CPE 26	Theory of Computing	3	0	3
CPE 27	Computer Networks	3	3	4
CPE 28	Software Engineering	3	3	4
CPE 29	Project Design 1	3	0.	3
CPE 30	I/O Memory System	3	0	3
CPE 31	Project Design 2	0	6	2
CPE 32	Seminars and Field Trip	1	0	1
	Sub-Total	66	57	85
E. Technical Electives				
ELECT 1	On- Online Technology	3	0	3
ELECT 2	Microelectronics	3	0	3
ELECT 3	Embedded Systems	3	0	3
	Sub-Total	9	0	9
Total Technical Courses		148	90	178
CPE 33	On-the-Job Training		360	6
II. NON-TECHNICAL COURSES				
A. Social Sciences and Humanities				
ECON 1	Basic Econ. w/ Taxation & Land Reform	3	0	3
HIST 1	Phil. History	3	0	3
PSYCH 1	Psychology 1	3	0	3
HUM 1	Art Appreciation	3	0	3
PHILO 2	Logic	3	0	3
POL SCI 6	Pol. & Governance with Phil. Constitution	3	0	3
SOCIO 1	Soc. & Culture w/ Family Planning	3	0	3
RIZAL	Life & Works of Dr. Jose Rizal	3	0	3
	Sub-Total	24	0	24
B. Languages				
ENGL 1	Study and Thinking Skills	3	0	3
ENGL 2	Writing in the Discipline	3	0	3
ENGL 3	Speech Communication	3	0	3
ENGL 24	Technical Writing	3	0	3
FIL 1	Sining ng Pakikipagtalastasan	3	0	3
FIL 2	Pagbasa at Pagsulat	3	0	3
	Sub-Total	18	0	18
Total Non-technical Courses		42	0	42

DESCRIPTION OF COURSES
Bachelor of Science in Computer Engineering
(Specializing in Electronics Technology)

I. TECHNICAL COURSES

A. Mathematics

MATH 1 COLLEGE ALGEBRA

The course deals with the following: Set Theory; real numbers; algebraic expressions and operations; equations and inequalities; complex numbers; functions, relations and their graphs; exponential and logarithmic functions; systems of equations.

Co-requisite : Math 15

MATH 1B ADVANCED ALGEBRA

This course covers the following topics: combinatorial mathematics; matrices and determinants; progression; binomial theorem; mathematical induction; and partial fractions.

Pre-requisite : Math 1

MATH 15 PLANE TRIGONOMETRY

Cartesian Coordinate System, Solutions of Right Triangles, Functions of Reference and Related Angles, Logarithms and its Applications to trigonometric Functions, Fundamental Identities and Equations, Radian and Circular Measures, Inverse Trigo Functions, Solution of Oblique Triangles, Vectors.

Co-requisite : Math 1

MATH 13 SOLID MENSURATION AND SPH. TRIGO

This includes the study of the sphere and its properties, surface and volume analyses, terrestrial sphere, zone, spherical segment, spherical sector, problems and applications, volumes and surfaces of revolution, polyhedron, and the general prismaoid.

It also includes the study on plane figures, cubes, parallelepiped; prism, pyramid; frustum of a pyramid; sphere and frustum of a cone.

Pre-requisite : Math 1B and Math 15

MATH 17E ANALYTIC GEOMETRY

Cartesian Coordinate System, Curves and Functions, Equation of a Locus, The Straight Line, The Circle, Conic Sections, General Equation of the Second Degree, Rotation of Axes, Tangents and Normals of Conics, Polar Coordinates, and Parametric Equations. Elective topics may be Families of Curves, Curve Fitting and Solid Analytic Geometry.

Pre-requisite : Math 1B/ Math 15

Co-requisite : Math 18

MATH 18 DIFFERENTIAL CALCULUS

A study of the fundamental concepts of real numbers, inequalities, functions, limits, continuity, derivatives and its applications, related rates, maxima and minima, areas and volumes.

Pre-requisite : Math 1B/ Math 15

Co-requisite : Math 17E

MATH 19 INTEGRAL CALCULUS

A study of definite and indefinite integrals, the fundamental theorem, applications of integration, techniques of integration, improper integrals, partial derivatives, exact differentials, line integrals, multiple integrals, and infinite series.

Pre-requisite : Math 18

MATH 21 INTRODUCTION TO PROBABILITY AND STATISTICS

A study of permutations, combinations, and elementary probability theory, common sampling procedures, collection and presentation of data, frequency distribution measures of dispersion, skewness and kurtosis, linear correlation, index numbers, method of least squares, inference, testing hypothesis and estimation, binomial, normal and Poisson distributions, linear regression.

Pre-requisite : Math 1B

MATH 26 DIFFERENTIAL EQUATIONS

The course covers the solution of the first order, first degree ordinary differential equations, applications, linear differential equations of higher order, use of inverse operations to solve linear differential equations, simultaneous differential equation, the method of variation of parameters, Laplace Transforms, Laplace Transform Method of solving differential equations.

Pre-requisite : Math 19

MATH 38 DISCRETE MATHEMATICS

Basic set theoretic and finite algebraic structures with applications to computer, graph theory, switching circuits and finite state machines, semi-groups, groups, lattices, rings, Boolean Algebra, linear inequalities, convex sets.

Pre-requisite : Math 1B and CPE 1

MATH 57 ADVANCED ENGINEERING MATHEMATICS

A study of selected topics in mathematics and their applications in advanced courses in engineering and other allied sciences. It covers the study of complex numbers, Laplace and Inverse Laplace Transforms, Power Series, Fourier Series, Matrices and Determinants, Vector Analysis and Numerical Methods.

Pre-requisite : Math 26

B. Physical Sciences

CHEM 1A GENERAL CHEMISTRY 1 (lec/ lab)

A study of the modern concepts and fundamental principles of chemistry, atomic structure, periodic classification and correlation with structure and chemical bond.

PHYS 1A COLLEGE PHYSICS 1 (lec/ lab)

A course on the basic concepts of physics such as mechanics which will serve as solid background for the courses which are to be taken in the upper level.

Pre-requisite : Math 1E and Math 15

PHYS 2A COLLEGE PHYSICS 2 (lec/ lab)

A study of waves, sound , heat, electricity, magnetism , light and quantum theory.

Pre-requisite : Phys 1A (lab/lec)

C. Basic Engineering Science

ES 1A, 2A ENGINEERING DRAWING W/ CAD 1 & 2 (LAB)

Basic sketching and drawing; orthographic projections; descriptive geometry; introduction to Computer Aided Design (CAD) applications.

ES 3 ENGINEERING MECHANICS

Statics and dynamics; operations with the free-body concept; equilibrium of coplanar and non-coplanar force systems; analysis of frames and trusses; friction; centroids and moments of inertia; motion of particles and rigid bodies; force , mass, and acceleration; work and energy; impulse and momentum.

Pre-requisite : Math 19 and Phys 1A (lec/lab)

ES 4A STRENGTH OF MATERIALS

Axial stress and strain; stresses for torsion and bending; combined stresses; beam deflections; indeterminate beams; elastic instability.

ES 8A ENGINEERING ECONOMY

Introduction to financial accounting, financial mathematics; time value of money; capital investment decision criteria; engineering-oriented applications.

ES 9 ENGINEERING MANAGEMENT

Industrial organization and management concepts, theories and principles, functions and practices; human behavior; introduction to decision-making tools; PERT-CPM; case studies.

D. Professional Subjects

CPE 1 COMPUTER ORIENTATION (LEC)

Introduction to computer concepts, origin and evolution of computers, computer number system, flowcharting, algorithm formulation, DOS , Windows applications and INTERNET.

Co- requisite : CPE 1L

CPE 2 COMPUTER PROGRAMMING (LEC/ LAB)

Introduction to the functional organization of computer systems; problem analysis; algorithm applications; formulation of algorithms in certain problems; programming concepts using a high-level language.

Pre-requisite : CPE 1 (lec/ lab)

CPE 3 DATA STRUCTURE AND ALGORITHM ANALYSIS (LEC/ LAB)

Linear data structures such as arrays, stacks, queues, linked lists; non-linear data structures such as generalized lists, trees and graphs; operations on these structures using algorithms such as deletions, insertions and traversals.

Pre-requisite : CPE 2 (LEC/LAB)

CPE 4 STRUCTURE OF PROGRAMMING LANGUAGES (LEC/ LAB)

Programming Languages concepts; data types and structures; control structures and data flow; run time considerations; interpretative languages; introduction to lexical analysis and parsing.

Pre-requisite : CPE 3 (LEC/LAB)

CPE 5 COMPUTER HARDWARE FUNDAMENTALS

This course provides an introduction to microcomputer systems hardware, operating system and application software. Installation of basic Local Area Network is also included. It covers topics on microcomputer installation, servicing and troubleshooting techniques, LAN set-up and configuration. Concepts are learned through extensive hands-on activities. The proper use and care of tools and equipment are emphasized in the course.

CPE 6 BASIC CIRCUITS 1 (LEC/ LAB)

Fundamental relationships in circuit theory; mesh and node equations; resistive networks; network theorems; solution of network problems using Laplace transform; transient analysis; methods of analysis for special circuits.

Pre-requisite : Phys 2A (LEC/LAB)/ Math 26

Co-requisite : Math 57

CPE 7 COMPUTER TROUBLESHOOTING

Techniques and procedures in installation, troubleshooting, repairs and maintenance of personal computer systems and peripherals.

Pre-requisite : CPE 5

CPE 8 BASIC CIRCUITS 2 (LEC/LAB)

Complex Algebra and phasors; simple AC circuits; impedance and admittance ; mesh and node analysis for AC circuits; AC network theorems; power in AC circuits; resonance; three-phase circuits; transformers; two-port network parameters and transfer function.

Pre-requisite : CPE 6 (LEC/LAB)

CPE 9 ELECTRONICS 1 (LEC/ LAB)

Elementary semi-conductor theory; diode and transistor models; diode circuit analysis; transistor biasing; small signal analysis; transistor amplifiers.

Pre-requisite : CPE 6 (LEC/ LAB)

Co-requisite : CPE 8 (LEC/LAB)

CPE 10 COMP. SYSTEM ORG. & ASSEMBLY LANG.(LEC/LAB)

Internal Number Representation and arithmetic; Computer structure and machine language; Assembly language concept.

Pre-requisite : CPE 2 (LEC/LAB)

CPE 11 LOGIC CIRCUIT AND SWITCHING THEORY (LEC/ LAB)

Review of Number systems; coding and Boolean Algebra; inputs and outputs; combinational circuits; minimization techniques; sequential circuits; state and machine equivalence; asynchronous and synchronous sequential circuits; race conditions, algorithmic state machines, design of digital subsystems.

Pre-requisite : CPE 6 (LEC/LAB)

Co-requisite : CPE 9 (LEC/LAB)

CPE 12 SAFETY ENGINEERING & ENVIRONMENTAL MGT.

Environmental Science Knowledge in Ecology and Human Population Control, Variety of Resources and Outline Plans for Attaining Sustainable Society, The Enigma of Pollution and the Legal, Technical and Personal Solutions for it. Study of Environmental Impact Assessment and Environmental Crisis. Safety Engineering Principles and Practice of Safety and Accident Prevention in the Engineering Workplace and Products.

Pre-requisite : Chem 1A

CPE 13 ELECTRONICS 2 (LEC/ LAB)

High-frequency transistor models; analysis of transistor circuits; feedback and operational amplifiers; switching operations of transistors; basic network for digital circuits, passive and active wave shaping.

Pre-requisite : CPE 9 (LEC/LAB)

CPE 14 TECHNOPRENEURSHIP

The course includes the journey into the world of entrepreneurship with introspection of a business idea into a viable nature. The focus is on unleashing the entrepreneurial spirit in each individual.

Pre-requisite : ES 9

CPE 15 ENGG. ETHICS AND COMPUTER LAWS

The course includes moral issues and decisions confronting individuals and organizations involved in engineering. This subject will focus on the study of the code of ethics, conflict of interest, safety and risk tradeoffs in design, confidentiality, behavior in the workplace, intellectual property, patents, trade secrets and contemporary issues in engineering.

CPE 16 DIGITAL SIGNAL PROCESSING

This course includes the fundamental concepts and practical application of digital Signal Processing.

Pre-requisite : Math 57

CPE 17 ADV. LOGIC CIRCUIT DESIGN WITH VHDL

MSI and LSI circuits and their applications; design of sequential circuits and multi-input system controller; system controller using combinational MSI/ LSI circuits, introduction to programmable system controllers.

This course focuses on different methodologies and styles in hardware modeling with emphasis on the use of hardware description languages (HDLs). It covers very high speed integrated circuit hardware description language (VHDL) fundamental language concepts and elements and the different levels of descriptions such as behavioral and structural.

Pre- requisite : CPE 11

CPE 18 PRINCIPLES OF COMMUNICATIONS

Communication circuits; signals and spectra; noise and distortion; methods of modulation; reception and detection; introduction to information theory.

Pre-requisite : CPE 13 (LEC/ LAB)

CPE 19 CONTROL SYSTEMS

This course includes the control devices, equations of a systems and block diagram of systems.

It also focuses on transfer functions; block diagram; signal flow graphs; root locus; Bode, Nyquist, and Polar plots; sensitivity and stability criteria; linear feedback systems; compensation techniques.

Pre-requisite : CPE 8 (LEC/LAB)
Math 57

CPE 20 COMPUTER SYSTEMS ARCHITECTURE

Von Neumann machines; instruction set; interpretation; control structures; interrupts; addressing techniques; I/O memory systems; mainline computers; pipeline computers; multiple- address machines; character machines; protection and performance introduction to multiprocessors and networks; microprogramming; non-Von Neumann machines.

Pre-requisite : CPE 10 (LEC /LAB)

CPE 21 OPERATING SYSTEMS (LEC/ LAB)

Review of instruction sets; I/O interrupt structures; addressing schemes; microprogramming; dynamic procedure activation; system structure; evaluation; memory management; process management; recovery procedures.

Pre-requisite : CPE 10 (LEC/ LAB)

CPE 22 MICROPROCESSORS (LEC/ LAB)

Survey of microprocessor organizations; microcomputer architecture; microprocessor programming; interfacing techniques; bus standards; microcomputer development systems and other tools for design; student project.

Pre-requisite : CPE 20
CPE 17 (LEC/ LAB)

CPE 23 DATA COMMUNICATIONS

Theory and components of data communication systems; modes, codes and error detection and correction techniques for data transmission, network protocols, common carrier services.

Pre-requisite : CPE 18

CPE 24 PROJECT MANAGEMENT

This course includes the fundamentals of Project Management; Project Management Process; Project Management Initiation; Project Planning and Quality; Time and Resource Management; Risk; Health and Safety; Project Cost and Budget; The Project Team; Contracts; Procurement and Closure Failure Mitigation.

CPE 25 TEST AND QUALITY ASSURANCE

This course includes total quality management principles; quality standards; hardware/ software configuration management; quality metrics; designing

measurement programs; reliability models; data quality control; and hardware/software testing.

Pre-requisite : Math 21

CPE 26 THEORY OF COMPUTING

Fundamentals of Computer Science; Deterministic and Non-deterministic Finite Automata; Context-Free Grammars, Pushdown Automata; Computability and Turing Machines, Computable and Non-computable functions, Halting Problems.

Pre-requisite : CPE 4 (LEC/LAB)

CPE 27 COMPUTER NETWORKS

The course includes computer networks and open system standards; transmission media and methods; LAN and WAN technologies; packet forwarding; host-to-host communications; network services; wireless networks; computer network design; network administration, management and security.

Pre-requisite : CPE 23

CPE 28 SOFTWARE ENGINEERING

Software development process, requirements analysis and definitions; tools and techniques; implementation tools and techniques; coding and programming techniques; reusable software management issues.

Pre-requisite : Fifth year standing

CPE 29 PROJECT DESIGN 1

This course provides essential ideas, concepts and principles in methods of research, as well as the important skills needed by the researcher in the various techniques and procedures in the correct preparation and presentation of research report. Required output is project proposal.

Pre-requisite : CPE 22

CPE 30 I/O MEMORY SYSTEMS

This course focuses on interface of external devices of a computer system. It includes modes of operation in interfacing, I/O devices and memories and hierarchy.

Pre-requisite : CPE 22

CPE 31 PROJECT DESIGN 2

A course in which individuals or small groups use the principles of computer engineering in the design, building and testing of special circuits or simple systems.

Pre-requisite : CPE 29 / Graduating Student

CPE 32 SEMINARS AND FIELD TRIPS

Seminars and lectures on current topics on computer science and engineering development; field trips to different companies and plants dealing with computers and related fields.

Pre-requisite : Fifth year standing

CPE 33 ON-THE-JOB TRAINING

A 320- HOURS practicum in Computer Engineering related fields. This enables the students to relate their acquired competencies to the realities and problems of industries. This may include involvement in the industry's manpower requirements, development and research concerns, trainings, applications of principles, environmental concerns, ethical and behavioral concerns, decision making, and equipment and materials concern.

Pre-requisite : Fifth Year Standing
Number of Contact Hours Required : 320 hours

II. GENERAL EDUCATION COURSES

A. Languages, Humanities and Social Sciences

ENGL 1, 2 STUDY & THINKING SKILLS; WRITING IN THE DISCIPLINE

Emphasis is on the development of proficiency in the whole exercise of the language. Primary aim is to improve the basic language skills: listening, speaking, reading and writing.

ENGL 24, 3 TECHNICAL WRITING, SPEECH IMPROVEMENT

Principles and techniques in writing technical reports, proposals, research reports, feasibility studies and theses. Oral engineering communications like job interviews, research defense, conference and seminars preparation and representations, effective selling , and other job-related needs.

Pre-requisite : Engl 2

FIL 1 SINING NG PAKIKIPAGTALASTASAN

Correlated lessons in grammar and literature; rules of modern linguistic orthography.

FIL 2 PAGBASA AT PAGSULAT

Lilinangin ng kursong ito ang mga kasanayan sa pagbasa at pagsulat para sa pangangailangang akademiko ng mga mag-aaral. Sakop din ang paghahanda, pagpapayaman o paglilikom ng iba't ibang terminolohiyang gamit sa isang partikular na larangan o disiplina. Magiging batayang paksa ang ukol sa humanidades at agham panlipunan, at agham at teknolohiya.

Pre-requisite : Fil 1

HUMANITIES

HUM 1 ARTS APPRECIATION

A basic course introducing the student to painting, sculpture, architecture, music, etc. through listening and watching; using slides, records, prints and texts.

PHILO 2 LOGIC

A study of the principles, laws and methods of correct thinking with a scientific treatment of the simple apprehension, the term, the judgment, the syllogism, and the fallacies.

B. Social Sciences

ECON IN BASIC ECON. W/ TAXATION AND LAND REFORM

The nature, institutions, practices and problems of economic life and its underlying principles; explanation of economic concepts such as production, price, monopoly, exchange, money and banking in the Philippines, and other Asian countries and the rest of the world. The course also includes the study and understanding of tax duties and responsibilities; the implementation of Agrarian Reform, tax consciousness and economic development through taxation and land reform.

HIST 1 PHILIPPINE HISTORY

The course is about the historical, cultural and political history of the Philippines from pre-Spanish times to the present.

PSYCH 1 PSYCHOLOGY 1

A basic understanding of the human mind, the nature of its contents, functions, sensations, thinking, feelings, and volitions; what is achieved by a direct combination of these contents and functions.

SOCIO 1 SOCIETY AND CULTURE W/ FAMILY PLANNING

An explanation of basic concepts of theories about society and culture in the understanding of one's culture and social environment; emphasizes an overview of the family in its cultural and social dimensions.

RIZAL LIFE AND WORKS OF Dr. Jose Rizal

Outstanding features of the hero's life, and critical understanding of the hero's poems, essays, novels and letters which are expressions of true nationalism.

POL SCI 6 POLITICS AND GOVERNANCE WITH THE PHIL. CONSTITUTION

A study of Filipino politics in general; includes its major foundations specifically political culture and the socialization process, constitutional regimes, the socio-economic setting, and the structural conditions. Emphasis is on the structural design of the ruling authority or government as established in the new constitution and the political status of sovereignty afforded and guaranteed the governed Filipino people. A brief historical background of the Philippine constitutional regimes is also explored.

C. Miscellany

PHYSICAL EDUCATION

PE 1 PHYSICAL EDUCATION, BASIC COURSE 1

The study and practice of alignment, position and facings, freehand exercises, light apparatus exercises and drills, tumbling, climbing, and the use of playground apparatus with reference to school physical activities. The course includes the study of history, nature and functions of games, its place in education and social life; the conduct of game days and athletic meets; and the teaching of games and other group activities suitable to the various age period.

PE 2 PHYSICAL EDUCATION, BASIC COURSE 2

The theory and practice of teaching game fundamentals in baseball, softball, basketball, soccer, volleyball, track and field, swimming, diving and folk dances of foreign nations, and their characteristics, steps and movements.

PE 3 PHYSICAL EDUCATION, BASIC COURSE 3

This course deals with the principles and procedures in the selections and presentation of physical education activities, and application of suitable execution techniques.

PE 4 PHYSICAL EDUCATION, BASIC COURSE 4

This course consists of observation and participation in the preparation to actual teaching of physical education practice, training and coaching and managing different sports activities; training in officiating in games and in the interpretation of rules in different sports and games.

NSTP

CWTS 1 CIVIC WELFARE TRAINING SERVICE, 1

CWTS 2 CIVIC WELFARE TRAINING SERVICE, 2