BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Computer Science Fundamentals – (3 Units – 2 Units-Lec/1 Unit-Lab)

This course provides an overview of computers, number systems, data types and representations, digital logic systems, assembly and machine language, compilers and translators, operating systems, and internetworking.

Computer Programming - (3 Units – 2 Units-Lec/1 Unit-Lab)

This course introduces the students to the fundamentals of logic formulation together with their implementation in the C programming language. This course should serve as a foundation for students in the Computer Science program.

Computer Programming 2 - (3 Units – 2 Units-Lec/1 Unit-Lab)

This is an advanced course for computer programming in C. It covers the data structures like array, list and file. This course also should serve as a foundation for students in the Computer Science program.

Discrete Structures 1 – (3 Units)

This course introduces the foundations of discrete mathematics as they apply to computer science. Topics include functions, relations and sets, basic logic, proof techniques, basics of counting and introduction to digital logic and digital systems.

Computer Organization and Assembly Language - (3 Units – 2 Units-Lec/1 Unit-Lab)

This course provides an overview of the architecture and organization of a computer, how it is built. It includes a discussion of the CPU, memory, I/O organization and peripherals.

Professional Ethics – (3 Units)

This course introduces ethics and ethical theories, provides discussions on the ethical dilemmas and issues facing IT practitioners. An appreciation and discussion of the Code of Ethics of I.T. Professionals; cyber crimes and appropriate Philippine Laws are also included.

Data Structures – (3 Units)

This course introduces the students to the design and implementation of basic and advanced data structures. Topics include basic data structures, trees, graphs and hashing.
Design and Analysis of Algorithms – (3 Units)

A study on the design and analysis, which introduces students to the techniques in basic algorithmic analysis, algorithmic strategies, sorting and searching, graph algorithms, and geometric algorithms.

Programming Languages - (3 Units – 2 Units-Lec/1 Unit-Lab)

This course provides students the fundamental features and concepts to different programming languages. Topics include overview of programming languages, Introduction to language translation, type systems, data and execution control, declaration and modularity, and syntax and semantics.

Automata and Language Theory – ( 3 Units)

This course introduces the formal models of computing and their relation to formal languages.

Digital Design – (3 Units – 2 Units-Lec/1 Unit – Lab)

This course provides an overview of the principles underlying number systems, logic gates. Fixed-point Representation, Boolean Function, Boolean Algebra, combinational and sequential logic circuits, flip-flops, registers, and PLAs.

Operating Systems - (3 Units – 2 Units-Lec/1 Unit – Lab)

This course provides an introduction to the concepts, theories and components that serve as the bases for the design of classical and modern operating systems. Topics include process and memory management, process synchronization and deadlocks.

Networks Principles and Programming – (3 Units – 2 Units-Lec/1 Unit-Lab)

This course provides an in-depth discussion of computer networks. It includes a detailed discussion of the different Network Models. Concepts that have a direct effect on the efficiency of a network (e.g. collision and broadcast domains, topology) are also discussed. Concepts on different network technologies, distributed computation, networking, and communication software, and security issues are also discussed.

Calculus – (3 Units)

A course covering the real number system as a complete, ordered field; topological properties of R and R2, limits and continuity.

Object-Oriented Programming – (3 Units – 2 Units-Lec/1 Unit – Lab)

This course provides the students with the fundamental understanding of object-oriented programming using Java. It introduces the different concepts that are commonly associated with object programming.

Database System – (3 Units – 2 Units-Lec/1 Unit-Lab)
The course introduces the students to the concepts of relational databases, data models and relational database design. The course requires students to do a database project, which will involve actual database design and application development. It will also familiarize students with database development tools.

**Web Development – (3 Units – 2 Units-Lec/1 Unit-Lab)**

This course provides the students with the fundamental understanding of developing web-based applications and its corresponding support systems. The course requires the use of different technologies in order to implement various web-based software applications.

**Systems Analysis and Design - (3 Units – 2 Units – Lec/1 Unit – Lab)**

This course covers the different phases of systems development focusing on analysis and design. Students will learn the rudiments of systems development through a feasibility study.

**Software Engineering – (3 Units – 2 Units-Lec/1 Unit – Lab)**

This course provides an overview of the software engineering process. Topics include requirement analysis, analysis modeling, software design fundamentals, software testing, quality assurance, quality processes and software maintenance. Principles of object-oriented programming, programming languages, object-oriented modeling and ethical issues in the IT field are also discussed.