

CITCS Course Description

CS101 – CS Fundamentals

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.

Pre-requisite: None

Credit: 3 units

CS102 – Computer Programming 1

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.

Pre-requisite: None

Credit: 3 units

CS103 – Computer Programming 2

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

Pre-requisite: CS 102

Credit: 3 units

CS104 – Discrete Structures 1

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.

Pre-requisite: MATH 1 (College Algebra)

Credit: 3 units

CS105 – Computer Organization and Assembly Language

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.

Pre-requisite: CS 206

Credit: 3 units

CS106 – Professional Ethics

The 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; cybercrimes and appropriate Philippine Laws are also included.

Pre-requisite: CS 101

Credit: 3 units

CS201 – Data Structures

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.

Pre-requisite: CS 102

Credit: 3 units

CS202 – Design and Analysis of Algorithms

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

Pre-requisite: CS 201

Credit: 3 units

CS203 – Programming Languages

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

Pre-requisite: CS 103

Credit: 3 units

CS204 – Automata and Language Theory

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

Pre-requisite: CS 103

Credit: 3 units

CS205 – Modeling and Simulation

This course introduces the students to modeling and simulation concepts. Topics discussed in the course include system analysis and classification., abstract and simulation models, continuous, discrete, and combined models, heterogeneous models. It also covers pseudorandom number generation and testing, queuing systems, the Monte Carlo method, and continuous simulation.

Pre-requisite: MATH 1

Credit: 3 units

CS206 – Digital Design

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.

Pre-requisite: MATH 2 (Trigonometry)

Credit: 3 units

CS207 – Operating Systems

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

Pre-requisite: CS 105

Credit: 3 units

CS208 – Data Communication and Networking

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.

Pre-requisite: CS 207

Credit: 3 units

CS209 – Differential Calculus

This course discusses the definition of a function, trigonometric, exponential, logarithmic, and inverse functions, limits, continuity, a derivative of a function, product, quotient and chain rule, implicit differentiation.

Pre-requisite: MATH 2 (Trigonometry)

Credit: 3 units

CS210 – Integral Calculus

This course discusses definite integrals and the fundamental theorem of calculus. Techniques of integration including integration by parts, trigonometric integrals, trigonometric substitutions, partial fractions, numerical integration, and improper integrals.

Pre-requisite: CS 209

Credit: 3 units

CS211 – Object-Oriented Programming

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

Pre-requisite: CS 103

Credit: 3 units

CS212 – Database System

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.

Pre-requisite: CS 103

Credit: 3 units

CS213 – Web Development

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

Pre-requisite: CS 212

Credit: 3 units

CS214 – Software Engineering

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.

Pre-requisite: CS 211

Credit: 3 units

CS215 – Compiler Design Theory

This course develops the mathematical basis for syntax specification and translation and shows how this basis can be used to design and implement compilers for imperative languages.

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