

# INFORMATION COMPUTER SCIENCES (ICS)

**ICS C120** 3 Units (54 lecture hours; 18 lab hours)

## Introduction to Programming

**Advisory:** CIS C111.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course provides students with an introductory exploration of the fundamental concepts and practices in computer programming. Designed for students with little or no prior programming experience, this course provides a solid foundation in problem-solving, algorithmic thinking, and coding skills. Students will learn how to design, write, and debug computer programs using a structured and logical approach. Through hands-on exercises and projects, students will gain the necessary skills to become proficient programmers. Graded or Pass/No Pass option.

**ICS C123** 3 Units (54 lecture hours; 18 lab hours)

## Fundamental Data Structures

**Advisory:** ICS C120.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

This course explores the core principles and techniques for designing, implementing, and using fundamental data structures in computer science. Data structures are the foundation of efficient algorithm design and are essential for organizing and managing data in various computational tasks. Students will explore a variety of data structures, their associated algorithms, and their applications through a combination of theory, practical programming exercises, and problem-solving. Graded or Pass/No Pass option.

**ICS C141** 3 Units (54 lecture hours; 18 lab hours)

## Concepts of Programming Languages

**Advisory:** ICS C120.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

This course delves into the theory and practical aspects of programming languages, exploring the fundamental concepts that underlie various programming paradigms. Students will gain a comprehensive understanding of the features, syntax, and semantics of programming languages and how they influence software development. Through a combination of theory, hands-on coding exercises, and analysis of programming languages, students will develop a deeper appreciation of language design and its impact on software engineering. Graded or Pass/No Pass option.

**ICS C230** 3 Units (54 lecture hours; 18 lab hours)

## Secure Coding and Design

**Advisory:** ICS C120 and ICS C123 and CYBR C101.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course is designed to provide students with the knowledge and skills necessary to develop secure software applications and systems. In an era marked by increasing cyber threats and data breaches, secure coding and design have become critical aspects of software development. This course covers best practices, principles, and techniques for identifying and mitigating security vulnerabilities in software. Students will learn how to design and develop applications with security in mind, reducing the risk of exploitation and data breaches. Graded or Pass/No pass option.

**ICS C240** 3 Units (54 lecture hours; 18 lab hours)

## Computer Organization and Assembly Language

**Advisory:** ICS C120 and ICS C123.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course explores the fundamental concepts of computer organization and assembly language programming. Students will dive into the inner workings of computer systems, learning about the architecture, memory hierarchy, central processing unit (CPU) design, and the role of assembly language in software development. Through hands-on exercises, students will gain practical experience in writing and debugging assembly language programs. This course serves as a bridge between low-level computer hardware and high-level software development. Graded or Pass/No pass option.

**ICS C250** 3 Units (54 lecture hours; 18 lab hours)

## Object-Oriented Programming

**Advisory:** ICS C120 and ICS C123.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course serves as an introduction to the fundamental principles and practices of object-oriented programming (OOP). Object-oriented programming is a key paradigm in software development, and this course provides students with the knowledge and skills to design, implement, and maintain software using OOP concepts. Students will learn to create classes, objects, and methods, and apply encapsulation, inheritance, and polymorphism to solve real-world programming problems. Hands-on coding exercises and projects will reinforce the theoretical concepts taught in the course. Graded or Pass/No pass option.

**ICS C265** 3 Units (54 lecture hours; 18 lab hours)

## Introduction to Artificial Intelligence

**Advisory:** CIS C157.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

In the rapidly evolving technology landscape, understanding artificial intelligence (AI) applications is a critical skill. This course provides an overview of the principles, techniques, and applications of AI. Students will learn about AI concepts, machine learning, neural networks, and real-world AI applications. Using popular software tools and low-code platforms, students will complete hands-on exercises in AI. Whether you are an AI enthusiast, developer, content creator, or researcher, this course equips you with the skills to harness the power of AI. Graded or Pass/No pass option.