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Number of pages including cover sheet 4
COMPUTER SCIENCE

CS V04 - INTRODUCTION TO COMPUTERS AND COMPUTER LITERACY - 3 Units
Hours: 2.5 lecture, 1.5 laboratory weekly

This course introduces the student to the fundamental concepts of computers and computer literacy. Topics include information technology, operating systems, applications software, hardware components, input, output, storage, graphics, hypermedia, multimedia, networking, computer communications, the internet, web page features, computer security, privacy with computer communications, systems analysis, systems design, programming languages, programming methods, management information systems, and the ACM Code of Ethics and Professional Conduct. This course also offers the student an introduction to the historical and social context of computing, including an overview of computer and information sciences as a discipline.

Fees will be required. Field trips may be required. Transfer credit: CSU; UC: credit limitations - see counselor.

CS V11 - PROGRAMMING FUNDAMENTALS - 3 Units
Prerequisite: CS V04 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Hours: 2.5 lecture, 1.5 laboratory weekly

This course introduces the student to fundamental concepts of procedural programming. Topics include data types, control structures, functions, arrays, files, and the mechanics of compiling, testing, and debugging. The course emphasizes good software engineering principles and developing fundamental programming skills in the context of a functional programming language.

Fees will be required. Field trips may be required. Transfer credit: CSU; UC: credit limitations - see counselor.

CS V15 - OBJECT-ORIENTED PROGRAMMING - 3 Units
Prerequisite: CS V11 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Hours: 2.5 lecture, 1.5 laboratory weekly

This course introduces the concepts of object-oriented programming to students with a background in the procedural paradigm. The course begins with a review of control structures and data types with emphasis on structured data types and array processing. It then moves on to introduce the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Other topics include an overview of programming language principles, simple analysis of algorithms, basic searching and indexing techniques, and an introduction to object-oriented design issues.

Fees will be required. Field trips may be required. Transfer credit: CSU.

CS V16 - DATA STRUCTURES AND ALGORITHMS - 3 Units
Prerequisite: CS V15 or equivalent; and MATH V03 or both MATH V04 and MATH V05
Hours: 2.5 lecture, 1.5 laboratory weekly

This course builds on the foundation provided by the programming fundamentals/object-oriented programming sequence to introduce the fundamental concepts of data structures and algorithms. The course introduces various data structures and algorithms along with their implementation. Topics include recursion, the underlying philosophy of object-oriented programming, fundamental data structures (including stacks, queues, linked lists, arrays, trees, and graphs), the basics of algorithmic analysis, and an introduction to the principles of language translation.

Fees will be required. Field trips may be required. Transfer credit: CSU.

CS V17 - DISCRETE STRUCTURES - 3 Units
Prerequisite: MATH V20 or both MATH V04 and MATH V05
Recommended preparation: CS V11 or equivalent
Hours: 3 lecture weekly

This course introduces the student to discrete mathematics as it is used in computer science. Topics include functions, relations, sets, propositional and predicate logic, simple circuit analysis, proof techniques, elementary combinatorics, and discrete probability.

Field trips may be required. Same as MATH V52. Transfer credit: CSU; UC: credit limitations - see counselor.

189 - Credit Courses
CS V19 - COMPUTER ARCHITECTURE AND ORGANIZATION - 3 units
Prerequisite: CS V15 or equivalent; and CS V17 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course introduces students to the organization and architecture of computer systems, beginning with the standard von Neumann model and then moving forward to more recent architectural concepts. This course also offers students an introduction to assembly language level programming of system software and computer applications. Fees will be required. Field trips may be required. Transfer credit: CSU; UC.

CS V20 - BEGINNING VISUAL BASIC - 3 units
Prerequisite: CS V04 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Recommended preparation: CS V11 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course introduces the student to the concepts of event-driven programming. This course presents basic knowledge, skills and techniques to build Visual Basic programs. Topics include the programming design process, visual control procedures, an overview of the computer hardware organization, data representation, instruction forms, flowcharting problems, logic solutions, and algorithms for problem solution. Concepts and definitions include: labels, variables, subscripts, data structures, object-oriented design, OLE, API, Windows forms, and scientific notation. Also included are debugging Visual Basic statements and elementary coding.
Fees will be required. Field trips may be required. Transfer credit: CSU; UC; credit limitations - see counselor.

CS V22 - INTERMEDIATE VISUAL BASIC - 3 units
Prerequisite: CS V11 or CS V20 or equivalent
Recommended preparation: MATH V03 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This intermediate-level course presents the concepts and principles of developing Microsoft Windows applications using Visual Basic. Topics include Multiple Document Interface (MDI), graphics, custom controls, Dynamic Link Libraries (DLL's), Object Linking and Embedding (OLE), advanced database access, and the Windows API. Emphasis is placed on developing more advanced programming techniques using programming standards, application integration, and rapid development.
Fees will be required. Field trips may be required. Transfer credit: CSU.

CS V24 - ADVANCED VISUAL BASIC - 3 units
Prerequisite: CS V22 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course presents object-oriented programming with Visual Basic to the student. The course begins with a review of advanced-level event model design methods for Single-Document Interface (SDI) and Multiple-Document Interface (MDI) applications. It then moves on to introduce the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Other topics include an overview of object-oriented programming language principles, analysis and design of algorithms, building ActiveX components and an introduction to software engineering issues.
Fees will be required. Field trips may be required. Transfer credit: CSU.

CS V33 - BEGINNING C++ - 3 units
Prerequisite: CS V04 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Hours: 2.5 lecture, 1.5 laboratory weekly
This course introduces the student to the concepts of object-oriented programming. The course begins with a review of fundamental structures and data types and then moves on to introduce the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Other topics include an overview of programming language principles, analysis and design of algorithms, and an introduction to software engineering issues. A complete object-oriented development framework is presented, including memory management, reusability, and managing complexity.
Fees will be required. Field trips may be required. Transfer credit: CSU; UC; credit limitations - see counselor.

Ventura College 2002-2003 Credit Courses - 197
CS V00 - BEGINNING C - 3 Units
Prerequisite: CS V04 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Recommended preparation: CS V11 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course introduces the students to programming with C language. Included in this course are program design process, C operators, standard C functions, strings, pointers, arrays, memory management and design of common algorithms. Algorithms are implemented as structured programs in C language.
Fees will be required. Field trips may be required. Transfer credit: CSU; UC; credit limitations - see counselor.

CS V02 - UNIX SYSTEMS PROGRAMMING - 3 Units
Prerequisite: CS V04 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course builds on the student's knowledge of the C programming language and introduces UNIX features and facilities. The course helps the student to explore issues related to programming in UNIX environment. The differences between programming in a DOS/Windows environment and the UNIX environment is covered focusing on the file system call interface, the programming interface between the UNIX kernel and applications software running in the UNIX environment. Students will create 8-bit applications in the UNIX environment.
Fees will be required. Field trips may be required. Transfer credit: CSU; UC; credit limitations - see counselor.

CS V04 - FORTRAN PROGRAMMING - 3 Units
Prerequisite: CS V04 or equivalent; and MATH V03 or 1 year of high school intermediate algebra (Algebra II) with grade of C or better
Recommended preparation: CS V11 or equivalent
Hours: 2.5 lecture, 1.5 laboratory weekly
This course presents to the student the concept of programming with FORTRAN. Topics include numerical computing, data types, control structures, program and subprograms, dynamic memory allocation, pointers, arrays, files, and the mechanics of running, testing and debugging. The course emphasizes good software engineering principles and developing fundamental programming skills in the context of the FORTRAN programming language.
Fees will be required. Field trips may be required. Transfer credit: CSU; UC; credit limitations - see counselor.

CS V08 - COMPUTER SCIENCE WORKSHOPS - .5-10 Units
Prerequisite: varies with topic
Hours: lecture and/or laboratory as required by unit formula
Designed to meet specific needs of the college and community, as required and requested by persons whose needs in this area are not met by present course offerings.
Fees may be required. Courses with same title may not be repeated; may be taken for a maximum of 4 times.

CS V09 - WORKSHOPS IN COMPUTER SCIENCE - .5-10 Units
Prerequisite: varies with topic
Hours: lecture and/or laboratory as required by unit formula
Designed to meet specific needs of the college and community, as required and requested by persons whose needs in this area are not met by present course offerings.
Fees may be required. Courses with same title may not be repeated; may be taken for a maximum of 4 times. Transfer credit: CSU; UC, determined after admission.

CS V96 - DIRECTED STUDIES IN COMPUTER SCIENCE - 1-6 Units
Prerequisite: varies with topic
Hours: lecture and/or laboratory as required by unit formula
This course offers a specialized study opportunity for students with intermediate skills who wish to pursue projects not included in the regular curriculum. Students are accepted only by written project proposals approved by the department prior to enrollment.
Fees may be required. Courses with same title may not be repeated; may be taken for a maximum of 4 times. Transfer credit: CSU; UC, determined after admission.