COMPUTER SCIENCE (CSC)

CSC 125 - Introduction to Computer Science, 4 credits.
An introduction to an object oriented programming language, algorithm design, structured and object-oriented programming techniques. No prior programming experience is assumed. Prerequisite: higher algebra.
Frequency: *Every Semester*
Core designations: Mathematics K

CSC 225 - Fundamental Structures, 4 credits.
Intermediate data structures and techniques of object-oriented and structured programming. Discrete data types and structures, including arrays, files, sets, lists, trees, hash tables, sorting and recursion. Small to medium-scale programs are developed.
Frequency: *Every Semester*
Prerequisites: CSC 125

CSC 250 - Pre-May Seminar, 4 credits.
Frequency: *Not offered on a Regular Basis*

CSC 300 - May Seminar, 4 credits.
Frequency: *May Seminar*
Core designations: International-Global Prspct G

CSC 310 - Web Design and Programming, 3 credits.
Basics of programming techniques for the World Wide Web. Provides an introduction to several web design methodologies including methodologies for data access and presentation.
Frequency: *Every Year - First Semester*
Prerequisites: CSC 125
This course is PEAK Optional

CSC 311 - Mobile Applications Development, 3 credits.
Basics of software development for mobile devices. Provides an introduction to programming techniques for mobile devices including mobile web access and mobile access to databases.
Frequency: *Alternate Years - 2nd Semester*
Prerequisites: CSC 225
This course is PEAK Optional

CSC 330 - Introduction to Database Management, 3 credits.
An introduction to database theory and practice. Topics include relational database design, ER modeling, normalization, SQL/embedded SQL, concurrency control, data warehousing and other emerging database technologies. Practical software engineering principles are emphasized through student projects.
Frequency: *Every Year - First Semester*
Prerequisites: CSC 125

CSC 335 / MATH 335 / SCM 335 - Operations Management/Research, 4 credits.
An introduction to the theory and practice of quantitative modeling and optimization, with applications to computer simulation and business resource management. Possible topics include linear and nonlinear programming, network analysis, game theory, deterministic and probabilistic models. Prerequisite: consent of the instructor.
Frequency: *Every Year - First Semester*
Corequisites: PEAK 400
Core designations: Mathematics K
This course is PEAK Required

CSC 340 - Principles of Software Engineering, 3 credits.
An overview of the systems development process. Includes: tools/techniques for describing processes, data flows, data structures, file designs, input/output designs, program specifications and prototyping for systems. Discovery, problem-solving and communications skills as employed by the systems analyst are also covered.
Frequency: *Alternate Years - 1st Semester*
Prerequisites: CSC 225

CSC 345 - Computer Networks, 3 credits.
This course is an introduction to the fundamental concepts in the design and implementation of computer networks. Topics include network topologies, OSI and TCP/IP reference models, local area networks, Wi-Fi, and routing. Examples and projects will focus primarily on TCP/IP protocols.
Frequency: *Alternate Years - 1st Semester*
Prerequisites: CSC 125

CSC 380 - Special Topics, 0-4 credits.
An opportunity to study in depth an advanced topic of current interest. Students work as teams to complete several extended research projects.
Frequency: *Not offered on a Regular Basis*
Repeatable: Yes

CSC 390 - Academic Internship, 1-8 credits.
Frequency: *Every Semester*
This course is PEAK Optional
Repeatable: Yes

CSC 410 - Artificial Intelligence, 3 credits.
This course is intended to give a wide exposure to the history and current state of the field of Artificial Intelligence. Students will be introduced to the different Artificial Intelligence methodologies and familiarized with the relative strengths and weaknesses of these technologies.
Frequency: *Alternate Years - 1st Semester*
Prerequisites: CSC 330

CSC 420 - Operating Systems, 3 credits.
A study of how computers manage their resources. Highlights include concurrency, memory management, process and processor management and scheduling, device control, performance evaluation and system security. Several operating systems are compared.
Frequency: *Alternate Years - 1st Semester*
Prerequisites: CSC 225

CSC 430 - Principles of Programming Languages, 3 credits.
An introduction to principles of programming language design. Topics include regular and context-free grammars, parsing, static and dynamic scoping, and type checking. Students will explore the dimensions of computer languages drawn from several different programming paradigms.
Frequency: *Every Year - First Semester*
Prerequisites: CSC 225

CSC 445 - Intro to Computer Security, 3 credits.
Provides an introduction to a variety of topics in computer security both from a technical and from a human resource point of view.
Frequency: *Alternate Years - 2nd Semester*
Prerequisites: CSC 330

CSC 470 - Applied Software Project, 3 credits.
This course will allow the students to apply all their knowledge from the computer science major to implement a real world software project. Students will simultaneously learn techniques for insuring quality software and will apply these techniques among other techniques to implement a software project with direct applicability to a large problem situation.
Frequency: *Alternate Years - 2nd Semester*
Prerequisites: CSC 330 and CSC 340
This course is PEAK Optional

CSC 480 - Independent Study, 1-4 credits.
This course provides an opportunity for individual students to conduct in-depth study of a particular topic under the supervision of a faculty member. Contact the department or program chair for more information.
Frequency: *Not offered on a Regular Basis*
Repeatable: Yes

CSC 483 - Human-Computer Interaction, 3 credits.
A study of the mechanisms for interaction (i.e. user interfaces) between users and computing equipment whether this computing equipment comes in the form of a computer or of a computing system embedded within any other system (manufacturing machinery controllers, medical equipment, aircraft, traffic lights, home appliances...etc.) Human computer interaction focuses on user satisfaction as well as ensuring user interfaces that avoid erroneous use of computing equipment that may at times have catastrophic results.
Frequency: *Not offered on a Regular Basis*

CSC 487 - Directed Research, 1-4 credits.
This course provides an opportunity for individual students to conduct research in a specific area of study, completed under the direction of a faculty mentor. Specific expectations of the research experience to be determined by the faculty. Repeatable for credit. Prerequisite: consent of instructor.
Frequency: *Not offered on a Regular Basis*
Repeatable: Yes