COMPUTATIONAL SCIENCE (CPS)

CPS 100 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

CPS 155 Introduction to Cyber Security (3 Credits)
Engineering & Comp Sci
Introductory concepts of: network organization and operation security. Differentiate among physical, organizational and personal security. Introduce mechanisms and history of software, hardware and OS security. Significant hands-on laboratory component with demonstrations and projects.

CPS 180 International Course (1-12 Credits)
Engineering & Comp Sci
Offered through SUAbroad by educational institution outside the United States. Student registers for the course at the foreign institution and is graded according to that institution's practice. SUAbroad works with the S.U. academic department to assign the appropriate course level, title, and grade for the student's transcript.
Repeatable 1 times for 999.99 credits maximum

CPS 181 Introduction to Computing (3 Credits)
Engineering & Comp Sci
Organization of computers, elementary programming, and problem solving. Applications in such areas as calculation and visualization, communication, databases, graphics, and artificial intelligence. Origins of the modern digital computer, future trends, social impact, abuses. Includes lab.
Shared Competencies: Information Literacy and Technological Agility (https://coursecatalog.syracuse.edu/shared-competencies/information-literacy-and-technological-agility/)

CPS 185 Introduction to Animation and Game Development (3 Credits)
Engineering & Comp Sci
This course provides a visual introduction to computer programming. Students will learn the basics of programming and high-level 3-dimensional animation together, while programming animations and games for assignments and an integrative final project.

CPS 196 Introduction to Computer Programming (3 Credits)
Engineering & Comp Sci
Basic computing concepts, data representation, problem definition, algorithms and flow charts, programming exercises. Students may not receive credit for both CPS 196 and ECS 102.
Shared Competencies: Critical and Creative Thinking (https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/); Information Literacy and Technological Agility (https://coursecatalog.syracuse.edu/shared-competencies/information-literacy-and-technological-agility/)

CPS 234 Introduction to Computational Thinking (3 Credits)
Engineering & Comp Sci
Computational-thinking skills developed through team-based problem solving. Fundamental concepts of computation, including algorithms, data organization, and computational strategies. Application of those concepts to solve problems from multiple settings and disciplines.

CPS 290 Independent Study (1-6 Credits)
Engineering & Comp Sci
Repeatable

CPS 300 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.

CPS 312 Intro/Cmputnl Sci II (3 Credits)
Engineering & Comp Sci

CPS 333 UNIX Operating System and Internet (3 Credits)
Engineering & Comp Sci
UNIX operating system: commands, hierarchical file systems, editors, windowing, networking, security, administration. Emphasis on shell programming, awk scripts, sed, e-mail, newsgroups, Internet, telnet/ftp, search tools (Archie, Gopher, WAIS, Mosaic). For non-majors in computer science.

CPS 335 JAVA programming for the Internet (3 Credits)
Engineering & Comp Sci
Introduction to JAVA, object-oriented programming concepts and windows programming. Variables and data types, expression evaluation, control, stand-alone programs, inheritance, polymorphism, applets, graphics classes, arrays and strings, interfaces, threads, windows, widgets, animation, sound, libraries.

CPS 400 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

CPS 430 Topics in Computational Science (3 Credits)
Engineering & Comp Sci
A variety of subjects surveyed or a particular subject in depth.
Repeatable 4 times for 12 credits maximum

CPS 451 Sr Comptnl Sci Project (3 Credits)
Engineering & Comp Sci

CPS 490 Independent Study (1-6 Credits)
Engineering & Comp Sci
In-depth exploration of a problem or problems. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor and the department.
Repeatable

CPS 500 Selected Topics (1-6 Credits)
Engineering & Comp Sci
Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.
Repeatable

CPS 501 Selected Topics (0 Credits)
Engineering & Comp Sci

CPS 504 Introduction to C++ (3 Credits)
Engineering & Comp Sci
Object oriented programming in C++: classes, derived classes, data abstraction, inheritance, and access control. Substantial programming assignments. For students not majoring in computer science.
Prereq: CPS 196

CPS 506 Introduction to C (3 Credits)
Engineering & Comp Sci
Programming in C: data types, control structures; the preprocessor; arrays and pointers. Substantial programming assignments. For students in computer science.

CPS 551 Computer Organization & Operating System Design (3 Credits)
Engineering & Comp Sci
Fundamentals of computer organization and operating systems design. Computer organization topics: CPU & pipeline architecture, data representation and memory hierarchies, assembly language and instruction sets. Operating system concepts: system calls, processes, threads, synchronization, memory management, input-output, traps, and file systems.