COMPUTER SCIENCE

CPS 100 COMPUTER SCIENCE INTRO SEMINAR
1 Lecture 0 Lab 1 Credit Hours(s)
Designed specifically for first semester students in the CPS curriculum who are also enrolled in CPS 141 (Introduction to Computer Science and Programming), this course will provide a broad based introduction to the discipline of computer science. Some topics examined will be the history of computer science, computer ethics, and the exploration of some of the different educational and career paths in computer science. The course will also provide information on college study skills and the effective utilization of college resources.
Co-requisite: CPS 141.

CPS 141 COMPUTER SCIENCE I
4 Lecture 0 Lab 4 Credit Hours(s)
Primarily for students in the Computer Science Curriculum. This course introduces the fundamental concepts of programming from an object-oriented perspective. Topics include simple data types, control structures, basic input/output, arrays, strings, methods, classes,and objects. Problem solving techniques, algorithm design and implementation strategies are also covered. Students will be introduced to object-oriented techniques using the programming language Java. Program and career advising will also be addressed. No prior programming experience is assumed.
Co-requisite: MAT184 or higher level math course. Students should also have college level reading and writing skills.

CPS 142 COMPUTER SCIENCE II
3 Lecture 0 Lab 3 Credit Hours(s)
This course continues the coverage of object oriented programming with an emphasis on using object oriented techniques to develop fundamental data structures. Topics presented include: principles of object-oriented programming (inheritance, polymorphisms and encapsulation) ; exception handling; stream I/O; data structures (arrays, linked lists, stacks, queues); recursion; searching and sorting algorithms; analysis of algorithms; developing and using generic classes and collections. GUI Applications are also covered.
Pre-requisite: CPS141 with a C or better.

CPS 231 COMPUTER SCI III/DATA STRUCTRS
3 Lecture 0 Lab 3 Credit Hours(s)
This course covers the fundamentals of data structures and software modeling. Topics include: analysis of algorithms (order notation), abstract properties, implementation and use of stacks, queues, linked lists, and binary trees, binary search trees, recursion and efficiency of recursive solutions, range of search (sequential, binary), select (min, max, median) and sort algorithms (quicksort, merge sort, heap sort) and their time and space efficiencies, software quality assurance (pre and post conditions, program testing), and professional responsibilities associated with software development.
Prerequisite: CPS 142 with a grade of C or better

CPS 271 SPECIAL STUDY PROJECT I
1 Lecture 0 Lab 1 Credit Hours(s)
A special learning experience designed by one or more students with the cooperation and approval of a faculty member. Proposed study plans require departmental approval. Projects may be based on reading, research, community service, work experience, or other activities that advance the student's knowledge and competence in the field of computer science or related areas. The student's time commitment to the project will be approximately 35-50 hours.

CPS 272 SPECIAL STUDY PROJECT II
2 Lecture 0 Lab 2 Credit Hours(s)
Similar to CPS 271, except that the student's time commitment to the project will be approximately 70-90 hours.

CPS 273 SPECIAL STUDY PROJECT III
3 Lecture 0 Lab 3 Credit Hours(s)
Similar to CPS 271, except that the student's time commitment to the project will be approximately 105-135 hours.