COMPUTER CSE SCIENCE AND ENGINEERING

College of Computer Science and Engineering

101 Computing Concepts and Competencies
Fall, Spring, Summer. 3(2-2) SA: CPS 100, CPS 130
Core concepts in computing including information storage, retrieval, management, and representation. Applications from specific disciplines. Applying core concepts to design and implement solutions to various focal problems, using hardware, multimedia software, communication and networks.

103 Introduction to Databases in Information Technology
Fall, Spring, Summer. 3(2-2) P:M: (CSE101) R: Approval of Department. Core concepts in database organization and use including information storage, retrieval, management, and representation via databases. Application of database concepts to develop and implement solutions to various problems including Web-to-database issues inherent in e-commerce.

131 Introduction to Technical Computing
Fall, Spring, 3(2-2) P:M: (MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 or MTH 152H or LBS 118 or concurrently) SA: CPS 131 Use of computing systems for technical communication and problem solving in engineering, mathematics, and science. Development and use of mathematical models suitable for computer representation, solution, graphical display, and animation.

211 Selected Topics in Computer Science
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Approval of department.

240 Informatics
Fall, Spring. 3(3-0) P:M: (CSE 103 or CSE 131 or CSE 231) and (MTH 103 or MTH 116 or MTH 124 or MTH 132 or LBS 117) or designated score on Mathematics placement test. R: Approval of department. Digital representation of objects such as numbers, signals, and 3D shapes. Algorithms that operate on digital objects. Storage devices and network distribution of digital objects. How information systems support various applications.

260 Discrete Structures in Computer Science
Fall, Spring, 4(4-0) P:M: (MTH 133 or MTH 126 or MTH 153H or LBS 119) SA: CPS 260

291 Selected Topics in Computer Science
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Approval of department. Topics selected to supplement and enrich existing courses and lead to the development of new courses.

301 Computer Organization and Assembly Language Programming
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) SA: CPS 301 Not open to students with credit in EE 331. Machine representation of data and instructions. Machine organization, primary storage, registers, arithmetic logic unit, control unit, operations. Assembly language programming, interface to high level languages. Assemblers and loaders.

331 Algorithms and Data Structures
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) R: Open only to students in the Department of Computer Science and Engineering or the Computer Engineering majors or the LBS Computer Science coordinate major or the Computer Science disciplinary major or the Computer Science disciplinary major.
Linear data structures, trees, and graphs and algorithms which operate on them. Fundamental algorithms for searching, sorting, string matching, graph problems, and their analysis.

410 Operating Systems
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) R: Open only to students in the Department of Computer Science and Engineering or the Computer Engineering major or the LBS Computer Science field of concentration or the LBS Computer Science coordinate major or the Computer Science disciplinary major. SA: CPS 470, CSE 470 Software life cycle including specification, design, coding, testing, and verification of a software product. Stepwise refinement and rapid prototyping. Software portability, reusability and maintenance.

420 Computer Architecture
Fall, Spring. 4(3-2) P:M: (CSE 232 and CSE 260) and (CSE 320 or ECE 331) R: Open only to students in the Department of Computer Science and Engineering or the Computer Engineering major or the LBS Computer Science field of concentration or the LBS Computer Science coordinate major or the Computer Science disciplinary major. SA: CPS 420 Digital logic and sequential machine design. Computer organization, control unit and arithmetic logic unit implementation. Input-output, memory organization, parallel operations. Digital system simulation.