+400. Senior Project I. 2 hrs. Prerequisite: Senior standing and approval of faculty adviser (Students undertaking a Senior Honors project will enroll in CET H400.)
+401. Senior Project II. 2 hrs. Prerequisite: CET 400 (Students undertaking a Senior Honors project will enroll in CET H401.)
420. Embedded Microcomputer Design. 3 hrs. Prerequisites: CET 302. Corequisite: CET 420L. Review of embedded computer applications followed by a detailed examination of microcomputer circuit design and commercial product development
420L. Embedded Microcomputer Design Laboratory. 1 hr. Corequisite: CET 420
437. Microcomputer Design. 4 hrs. Advanced microcomputer architecture and operation
450. Data Acquisition. 2 hrs. Prerequisites: CET 302, CET 316, CSS 331, CSS 334. Corequisite: CET 450L. A detailed study of computer data acquisition hardware and software techniques
450L. Data Acquisition Laboratory. 1 hr. Corequisite: CET 450
472. Advanced Programmable Devices. 3 hrs. Prerequisites: CET 301. Corequisite: CET 472L. Synchronous logic design through the use of state machine models and other advanced design tools; designs implemented and tested in VLSI programmable logic devices
472L. Programmable Devices Laboratory. 1 hr. Corequisite: CET 472
477. Introduction to Control Systems Technology. 3 hrs. Prerequisites: CET 323 and EET 312. Corequisite: CET 477L. Fundamental control system theory and applications; servomechanisms; process control; measurement and instrumentation
477L. Control Systems Laboratory. 1 hr. Corequisite: CET 477
478. Digital Control Systems. 2 hrs. Prerequisite: EET 323. Corequisite: CET 478L. Design of systems incorporating a computer as an online element; design of control algorithms and optimal control techniques
478L. Digital Control Systems Laboratory. 1 hr. Corequisite: CET 478
483. Windows Networking. 3 hrs. A comprehensive examination of the Windows 95 networking architecture and capabilities
486. Intraneurotzening. 2 hrs. Prerequisite: CET 485 or permission of instructor. A continuation of CET 485 that will emphasize intranetworking directory architecture, binding of network protocols, creation and management of user and group accounts
488. TCP/IP. 3 hrs. Prerequisite: CET 483. A comprehensive examination of the Internet’s standard protocol suite TCP/IP
489. Internet Information Server. 2 hrs. Prerequisite: CET 471 or permission of instructor. A continuation of CET 471. Installation and configuration of a popular NOS as an Internet information server
492. Special Problems. 1-4 hrs.
496. Industrial Internship. 1-6 hrs. A minimum of 400 total hours of internship under the direct supervision of industrial professionals in collaboration with Southern Miss faculty

COMPUTER SCIENCE (CSC)*
99. Programming Concepts. 3 hrs. This course will introduce students to the foundation concepts of computer programming with a focus on problem-solving using a simple interactive shell.
100. Introduction to Computing. 3 hrs. Prerequisite: 1/2 Carnegie unit in computing. Provides an insight into the problem-solving/software/social/ethical/legal issues that underlie computer systems; includes databases, spread sheets and simple programming (CC 1113)
101L. Computer Science I Laboratory. 1 hr. Corequisite: CSC 101
102. Computer Science II. 4 hrs. Prerequisite: CSC 101, 101L. Continuation of CSC 101 with emphasis on programming style and algorithm analysis
203. Introduction to Computer Systems. 3 hrs. Prerequisite: CSC 102. Computer systems and architecture, assembler language programming
204. Introduction to Computer Organization. 3 hrs. Prerequisite: CSC 102. Fundamentals of logic design, organization and structuring of computer hardware components, mechanics of information transfer and control within a digital computer system
300. Foundations of Computer Science. 3 hrs. Introduction to finite and discrete structures, combinatorics and graphs, and algorithmic processes with applications in computers, languages and programs
305. Introduction to File Processing. 3 hrs. Prerequisite: CSC 102. Concepts of structuring data on bulk storage devices, applications of data structures and file processing techniques
306. Operating Systems and Computer Architecture. 3 hrs. Prerequisites: CSC 203, 204 and 307. Operating systems principles, relationships between operating system and computer architecture
309. Computers and Society. 3 hrs. Prerequisite: ENG 102. Ethical issues for technical professionals, social impact of professional and entrepreneurial activity, the social impact of computer technology; writing-intensive; oral communication-intensive
317. Object-Oriented Programming. 3 hrs. Prerequisites: CSC 203 and 307. Conceptual overview, characteristics of an object-oriented language, objects, classes, arrays, operator overloading, inheritance, virtual functions, streams
320. Introduction to Linear Programming Techniques. 3 hrs. Prerequisite: MAT 101. Formulation of models, graphical solutions, simplex method, two-phase technique, duality, convexity, simultaneous linear equations, vector spaces
408. Organization of Programming Languages. 3 hrs. Prerequisite: CSC 307. Runtime behavior of programs, formal specification and comparative analysis of programming languages, programming paradigms
411. Database Management Systems Design. 3 hrs. Prerequisite: CSC 307. Design and implementation of DBMS. Survey of research literature
412. Introduction to Artificial Intelligence. 3 hrs. Prerequisite: CSC 307. Concepts and techniques of intelligent systems; survey of research literature
413. Algorithms. 3 hrs. Prerequisites: CSC 307 and MAT 169 or MAT 179. Design and analysis of algorithms; complexity theory
414. Software Design and Development. 3 hrs. Prerequisite: CSC 307. Formal development of software through team projects; oral communication intensive
415. Theory of Programming Languages. 3 hrs. Prerequisite: CSC 408. Formal treatment of programming language translation and compiler design concepts
416. Software Project Planning and Management. 3 hrs. Prerequisite: CSC 414. Hands-on experience with all the stages of software planning; features "Microsoft Project" which is the most widely used software planning tool
417. Software Process Engineering. 3 hrs. Prerequisite: CSC 414. Study and implementation of software processes and also on how they fit into Carnegie Mellon (SEI) maturity levels
420. Networked Distributed Systems. 3 hrs. Prerequisite: CSC 307. Introduction to computer networks; inter-process communication, distributed file systems, O.S. support, security, coordination and agreement, name services
421. Relational Data Base Management Systems. 3 hrs. Prerequisite: CSC 411. Theory of relational systems, comparison of relational and conventional systems, use of state-of-the-art relational systems such as oracle
422. Operations Research. 3 hrs. Prerequisite: CSC 320. Transportation problem, assignment problem, PERT/CPM, networks, integer programming
424. Software Engineering II. 3 hrs. Prerequisites: CSC 414 and ENG 102. Programming languages and software design, modular/object-oriented design, team programming, human factors, case studies; senior capstone, writing-intensive; oral communication-intensive
425. Computer Graphics Design. 3 hrs. Corequisite: CSS 350 or CSC 307. Prerequisite: one semester of calculus; theory, design and use of computer graphic systems
435. Simulation and Modeling. 3 hrs. Prerequisites: CSS 211 or 415 and 240 or 330. Constructing models of discrete stochastic systems, systems dynamics; use of a simulation package
440. Client Side Web Programming. 3 hrs. Prerequisite: CSC 317. This course is designed for students who want to learn to communicate effectively using Client Side Web development technology.
441. Web Server Side Programming. 3 hrs. Prerequisite: CSC 411. This course will introduce students to the fundamental concepts in developing Web servers.
442. Open Source Web Services. 3 hrs. Prerequisite: CSC 414. Combine tools learned in previous courses to study and contribute to an ongoing Open Source Web service project
444. Robotic Systems: Theory, Development and Analysis. 3 hrs. Prerequisite: MAT 326. Robotic system development, direct kinematics, the arm equation, workspace analysis, trajectory planning and robotic programming methodologies
485. Information Retrieval in the U.K.-Theory. 3 hrs. Prerequisites: High-level programming language and permission of instructor. A study of British information processing systems
486. Information Processing in the U.K.-Applications. 3 hrs. Prerequisites: CSC 485 and permission of instructor. Design of information processing systems
492. Computer Science Problems I. 1-3 hrs. Prerequisite: senior standing. Solution of problems germane to a select area of study
493. Computer Science Problems II. 3 hrs. Solution of problems germane to a select area of study
* A grade of C or better is required for all prerequisite courses listed in this section.

COMPUTER SCIENCE (CS)
(Offered Only at Southern Miss Gulf Coast)
301. Introduction to Programming. 3 hrs. Structured programming, stepwise refinement, introduction to the C programming language
302. Advanced Computing Programming. 3 hrs. Prerequisites: CS 301 or equivalent. Structured programming and an in-depth study of the C programming language
303. Digital Computer Programming. 3 hrs. Prerequisite: CS 302. Assembly language coding: registers, instruction formats, decimal and floating point arithmetic. I/O coding, system capabilities, program states
307. Data Structures. 3 hrs. Prerequisite: CS 302. Data structures and algorithms for their manipulation. Lists and arrays; stacks, queues, linked lists, tree structures; elementary sorting and searching routines
320. Introduction to Linear Programming Techniques. 3 hrs. Prerequisite: MAT 101. Formulation of models, graphical solutions, matrix operations, simplex method, two-phase technique, duality, convexity, simultaneous linear equations, vector spaces
401. Object-Oriented Programming. 3 hrs. Prerequisite: CS 307. Conceptual overview, characteristics of an object-oriented language, objects, classes, arrays, operator overloading, inheritance, virtual functions, streams
406. Operating Systems. 3 hrs. Prerequisites: CS 303 and CS 307. An in-depth study of operating systems (batch, time-sharing and real-time systems)
408. Programming Languages. 3 hrs. Prerequisite: CS 307. Formal study of programming languages, organization of programming languages, run-time behavior of programs, interpretative language, lexical analysis and parsing
411. Relational Database Management Systems. 3 hrs. Prerequisite: CS 307. Introduction to RDBMSs. Includes database design using the entity relationship model, relational model theory, the relational algebra and the implementation of applications using SQL and a state-of-the-art relational system such as Oracle
412. Principles of Artificial Intelligence. 3 hrs. Prerequisite: CS 307. Computer representation of knowledge, problem-solving, automated deductive systems, computer learning, computer implementation of AI problems, expert systems
414. Software Engineering I. 3 hrs. Prerequisite: CS 307. Overview of software developments, project management, programming style, testing, debugging and other topics
415. Compiler Design. 3 hrs. Prerequisite: CS 307. An in-depth study of compilers and compiler writing techniques
421. Advanced Topics in Relational Database Management Systems. 3 hrs. Prerequisite: CS 411. A selection of advanced topics representing current trends in RDBMSs. Topics include, but are not restricted to, concurrency, backup and recovery, embedded database calls, distributed RDBMSs, and object-oriented RDBMSs.
422. Operations Research. 3 hrs. Prerequisite: CS 320. Transportation problem, assignment problem, networks, integer programming
424. Software Engineering II. 3 hrs. Prerequisite: CS 414. Programming languages and software design, modular/object-oriented design, team programming, human factors, case studies
485. Information Retrieval in the U.K.-Theory. 3 hrs. Prerequisites: High-level programming language and permission of instructor; a study of British information processing systems
486. Information Processing in the U.K.-Applications. 3 hrs. Prerequisites: CS 485 and permission of instructor. Design of information processing systems
492. Computer Science Problems I. 3 hrs. Prerequisite: senior standing. Solution of problems germane to a select area of study
493. Computer Science Problems II. 3 hrs. Solution of problems germane to a selected area of study

COMPUTER SCIENCE AND STATISTICS (CSS)*

145. Musical Instrument Digital Interface Concepts and Programming. 3 hrs. Prerequisite: ability to read music and perform on a musical instrument; an introduction to computer fundamentals with applications to music using Musical Instrument Digital Interface

211. Statistical Methods I. 3 hrs. Prerequisite: MAT 100 or MAT 101. Sampling and sampling distributions: normal and binomial, measures of central tendency and dispersion, hypothesis testing (CC-BAD 2323)

212. Statistical Methods II. 3 hrs. Prerequisite: CSS 211. Hypothesis testing, correlation, regression analysis, analysis of variance and covariance

240. FORTRAN Programming. 3 hrs. Techniques of programming using the FORTRAN 77 language (CC 2323)

242. Fundamentals of COBOL. 3 hrs. Logic design and fundamental Cobol concepts for business majors; cannot count toward a degree in computer science

330. Introduction to Programming. 3 hrs. Structured programming, step-wise refinement, introduction to Pascal; students may not apply both CSS 330 and CSC 101 toward a degree; cannot count toward a degree in computer science

331. Visual Basic. 3 hrs. Prerequisite: CSC 101 or CSS 240 or CSS 333. Designing and writing VB program, object-oriented design, event-driven programming, object linking, embedding and prototyping, CAD and equipment interface

333. Problem-Solving Using C. I. 3 hrs. Prerequisite: computer literacy. Introduction to UNIX, Internet, electronic mail. Introductory C programming, algorithm development, top-down, object-oriented development; applications in technology. Students may not apply both CSS 333 and CSC 101 toward a degree.

334. Problem-Solving Using C. II. 3 hrs. Prerequisite: CSS 333. Continuation of top-down design, integrated editor and debugger, elementary data structures, file processing, topics in graphics

340. Advanced Computing Programming. 3 hrs. Prerequisite: CSS 330 or equivalent. Structured programming and an in-depth study of Pascal; students may not apply both CSS 340 and CSC 102 toward a degree; cannot count toward a degree in computer science

342. Introduction to COBOL Programming. 3 hrs. Prerequisite: CSS 334 or CSC 102. Programming of problems using the COBOL language

343. C Programming. 3 hrs. Prerequisite: CSS 330. Techniques of programming using the C language

346. Introduction to Java. 3 hrs. Prerequisite: CSC 102 or CSS 334. Comprehensive coverage of the Java programming language and environment. Java basics, object-oriented programming and graphical user interface design; collection of Java introductory topics

350. Data Structures. 3 hrs. Prerequisite: CSS 334. Data structures and algorithms for their manipulation. Lists and arrays; stacks, queues, deques, tree structures; elementary searching and sorting routines. Students may not apply both CSS 350 and CSC 102 toward a degree

360. The Unix Operating System. 3 hrs. Prerequisite: CSC 102. History, operating system fundamentals, basics, file system, informational and text utilities, vi editor, Bourne shell programming, X windows, networking, awk and perl programming

400. Introduction to Computer Education. 3 hrs. Introduction to concepts, techniques, materials and resources for teaching computer science concepts, problem-solving and programming relative to computer literacy; research and presentations related to computer science education

402. Structured Basic Programming. 3 hrs. Prerequisite: CSS 400. Technical presentation of BASIC with scientific problem-solving, algorithms and an introduction to data structures; cannot count toward a degree in computer science

403. Authoring Systems for Computer-Based Learning. 3 hrs. Prerequisite: CSS 400. Developing computer-based instructional modules utilizing the authoring system approach; cannot count toward a degree in computer science

404. Internet Concepts. 3 hrs. Prerequisite: basic computer literacy. Introduction to the information super highway via the Internet; does not satisfy core requirements in the College of Science and Technology

405. Advanced Internet: CGI Programming. 3 hrs. Prerequisites: Knowledge of the internet, basic HTML, some high-level programming language. Basic review of WWW and HTML, forms and forms processing, CGI programming, Java programming, VRML, security and privacy issues

415. Methods of Mathematical Statistics I. 3 hrs. Prerequisite: MAT 168. Introduction to probability, random variables, mathematical expectation, sampling distributions, confidence intervals and hypothesis testing on single populations

417. Experimental Design. 3 hrs. Prerequisite: CSS 416. Factorials, randomized blocks, Latin squares and split-plot, fractional factorials and confounding, response surface models

418. Sampling Methods. 3 hrs. Prerequisite: CSS 415. The planning, execution and evaluation of sample surveys; simple random sampling, stratified random sampling, cluster sampling

431. Advanced Visual Basic. 3 hrs. Prerequisite: CSS 331. OO terminology and applications, object linking and embedding, word-processing and spreadsheet concepts, RDBMS, SOL, introduction to the Internet, VB objects on the Internet, VB programming on the Internet

442. Information Systems. 3 hrs. Prerequisite: CSS 342. Methods of system analysis, data acquisition, file structures, terminal selection, use of flowcharts and decision tables

446. Advanced Java. 3 hrs. Prerequisite: CSS 346. This course is designed to prepare the student with the skills and techniques needed to rapidly develop and deploy sophisticated client-server Java applications; covers a collection of advanced Java topics

460. Unix System and Network Administration. 3 hrs. Prerequisite: CSS 360. Implementing firewalls, gateways and providing network file, print, Web and electronic mail services

490. Computer Science Seminar. 1 hr. Arr. Presentation of technical topics in the field

* A grade of C or better is required for all prerequisite courses listed in this section.

CONSTRUCTION ENGINEERING TECHNOLOGY (BCT)

205. Surveying. 2 hrs. Prerequisite: MAT 103. Corequisite: BCT 205L. Theory and practice in use of instruments for measuring distances, angles, etc., as applied in architectural and construction projects

205L. Surveying Laboratory. 1 hr. Corequisite: BCT 205