443-3 *Interviewing* Theory and practice in interviewing procedure including the use of sample interviews and role-playing situations.

445-3 *Group Communication and Conference Leadership* Intensive study of group communication regarding leadership development and member participation; examination of the characteristics of the group and the various aspects of decision making.

447-3 *Organizational Communication* Study of communication within an organization including an examination of the variables that affect communication productivity.

449-3 *Survey of Communication Research* Provides students with a basic knowledge of the behavioral approach and current theories and experiments in communications research. Prerequisite: COM 233, 441, or permission of instructor.

453-3 *Communication and Conflict* An in-depth study of the function of communication in conflict/crisis situations. Special attention is given to the role that communication performs in conflict resolution in intrapersonal, interpersonal, group, and international situations.

455-3 *Nonverbal Communication* Theory, survey of research, and experiential learning in nonverbal communication. Exploration of types and forms and of methods of sending and receiving nonverbal communication. Prerequisite: COM 102 or 141.

457-4 *Studies in Journalism* In-depth studies of selected areas of journalism. Specific subtitles added with individual courses. Prerequisite varies with individual courses.

471-3 *Topics in Speech Communication* An examination of special topics in the various areas of speech communication. Specific titles are announced each time a course is offered. May be repeated for credit.

481-2 to 3 *Independent Study* Faculty-directed readings and research. Junior or senior standing, 3.0 average in major, and permission of instructor and department chairman prior to registration required.

482-1 to 3 *Senior Honors Project* An independent studies course for students accepted into the speech communications honors program. The course allows students to pursue research that culminates in a senior honors thesis or project. Prerequisite: nine hours of communication honors course.

491-1 *Communication Techniques and Evaluation* The philosophy and techniques of conducting communication events. Includes the planning, initiating, and summarizing of communication activities, and evaluating written and oral performance. Repeatable for a maximum of three credits. Permission of instructor required.

Comparative Literature (CPL)

201-4, 202-4, 203-4 *Masterpieces of Western Literature* Comparative study and analysis of chronologically selected works from the literatures of the Western World. 201: Ancient World and Middle Ages. 202: Renaissance and Neoclassicism. 203: Romanticism to the Modern Period.

210-3 *Problems in Comparative Literature* Readings in comparative literature dealing with themes, myths, genres, literary movements, or characters; e.g., the myth of Electra in the modern theatre, the Picaresque novel, Existentialism in European fiction, and the ambitious hero in literature.

399-1 to 4 *Studies in Selected Subjects* Course of variable content dealing with problems, approaches, and topics in the field of comparative literature.

405-3 *Theory of Comparative Literature* History and development of comparative literature as a discipline; study of basic reference works and journals; papers and reports based on comparative studies. Junior standing or permission of instructor required.

Computer Engineering (CEG)

260-4 *Introduction to Digital Computer Hardware* Intended to provide computer scientists, engineers, and other computer users with terminology and understanding of physical components used in computer hardware. Topics covered: numbers systems, computer elements and symbols, instrumentation, boolean algebra, and/or circuitry, registers, adders, and memories. Prerequisite: CS 152.

390-4 *Use of Minicomputers* Introduction to the design and development of software and computer interfacing hardware for effective utilization of minicomputers in process control, data collections, and other special-purpose computing systems. All topics illustrated with practical examples using D.E.C. PDP-11.

391-4 *Introduction to Data Communication* Principles of digital communication are discussed from a conceptual point of view with an elementary survey of theoretical aspects. Trends are analyzed in the context of competing technologies, changing needs, and emerging new technologies.

392-4 *Use of Microprocessors* Introduction to the design and development of software and computer interfacing hardware for effective utilization of microprocessors in process control, data collecting, and other special purpose computing systems. Software topics: loaders, assembly language programming, input/output, interrupts, and timing problems. 3 hrs. lect., 2 hrs. lab. CS majors cannot take this course for credit.

402-4 *Introduction to Computer Communication* A survey of modern digital communications techniques. Special focus is on serial transmission over public communications channels. Topics include information content and coding, asynchronous and synchronous formats, concentrating and multiplexing, channel properties, modulation techniques, common carrier services, error sources and control, regulatory policies, networks and their analysis. 3 hrs. lect., 2 hrs. lab. Prerequisite: CEG 260 or equivalent and knowledge of FORTRAN.

420-4 *Computer Organization I* Functional organization and sequential operation of a digital computer. Stored-program computer description using a computer design language. Microprogramming. Fixed-point arithmetic units. Serial arithmetic units. 3 hrs. lect., 2 hrs. lab. Prerequisite: CEG 260 or consent of instructor.

421-4 *Computer Organization II* Functional organization and sequential operation of a digital computer. Memory organization and addressing. Channels. Interface. Microprogramming software. 3 hrs. lect., 2 hrs. lab. Prerequisite: CEG 420.

430-4, 431-4 *Advanced Programming* Machine language programming and use of assembly language programming systems for internal processing and control of external devices. A particular computer, machine language, and programming system used extensively to illustrate the concepts covered and to give the student actual programming experience. 3 hrs. lect., 2 hrs. lab. Prerequisite: for 430, CS 141 or CS 210 or consent of instructor; for 431, CEG 430.

453-4 *Design of Small Computing Systems* Laboratory projects which combine engineering hardware and computer science software concepts in the design and implementation of small special purpose computer systems. 2 lect., 4 hrs. lab. Prerequisite: CEG 421, 431.

Computer Science (CS)

110-4 *Elementary Programming* An introduction to computers as problem-solving devices. For students with no previous experience in computing. Emphasis on developing the problem-solving skills needed for writing programs.

141-4, 142-4 *Introduction to Programming with FORTRAN* Introduction to use of computers as a problem-solving tool. Examples from and applications to a broad range of problems. FORTRAN is the current implementation language used. 3 hrs. lect., 2 hrs. lab. Prerequisite: for 141, satisfactory score on computer science placement exam; for 142, CS 141.

152-4 *Introduction to Computing* Computer and program structure, machine and assembly language. Analysis of numerical and nonnumerical problems. 3 hrs. lect., 2 hrs. lab. Prerequisite: CS 141 or CS 210 or CS 300 or equivalent or permission of instructor.

181-4, 182-4, 183-4 *Computer Science Cooperative Education I, II, III* One quarter of full-time work experience in a computer science area. Faculty supervision and evaluation. Planned learning objectives, two reports, employer evaluation, and evaluation conference with faculty adviser required. Not applicable to departmental requirements. Prerequisite: for 181, junior standing in department and consent of director of cooperative education; for 182, CS 181 and consent of department and director of cooperative education; for 183, CS 182 and consent of department and director of cooperative education.

210-3 *Introduction to FORTRAN for Engineers* Introduction to digital computers and computer programming with FORTRAN language. Algorithms and techniques useful to engineers. Data representation, debugging, and program verification. Programming assignments include solution of simultaneous equation, zeros of transcendental equations, numerical integration and differentiation, matrix operations, and complex arithmetic. Prerequisite: MTH 132.

300-4, 301-4 *COBOL Programming* Elements of COBOL language; techniques for debugging and interpreting computer output; linkage to subroutines and overlays; file structures involving both sequential and random access; case studies with business applications. 3 hrs. lect., 2 hrs. lab. Prerequisite: for 300, ADM 103 or some computer science course or programming experience; for 301, 300.

310-4 *Assembly Language Programming—System 360-370* A thorough study of the basic assembler language of the system 360-370. Constant definition, conversions, moves, transfer of control and address manipulation, data manipulation, floating point and decimal modes, dumps, macros, conditional assemblies, and DCBs. Prerequisite: CS 152.

316-4, 317-4 *Numerical Methods for Digital Computers* Introduction to numerical methods used in the sciences. Methods of interpolation, data smoothing, functional approximation, integration, solutions of systems of equations, and solutions of ordinary differential equations. 3 hrs. lect., 2 hrs. lab. Prerequisite: for 316, MTH 233 and CS 210 or CS 141; for 317, CS 316.

381-4, 382-4, 383-4 *Computer Science Cooperative Education IV, V, VI* One quarter of full-time work experience in a computer science area. Faculty supervision and evaluation. Planned learning objectives, two reports, employer evaluation, and evaluation conference with faculty adviser required. Not applicable to departmental requirements: Prerequisite: for 381, CS 183 and consent of department and director of cooperative education; for 382, CS 381 and consent of department and director of cooperative education; for 383, CS 382 and consent of department and director of cooperative education.

393-4 *Assembly Language Programming—System 360/370* Topics include: elements of machine language and assembly language, constant definition, data conversion, data moves and manipulations, transfer of control and address modification, memory dumps and program debugging, data set definitions and usage, conditional assemblies, and executing and translating instructions. 3 hrs. lect., 2 hrs. lab. Knowledge of FORTRAN or COBOL required. CS majors cannot take this course for credit.

399-1 to 5 *Selected Topics* Selected topics in computer science. May be repeated. Permission of instructor required.

400-4 *Data Structures* Basic concepts of information. Modeling structures-linear lists. Modeling structures-multi-linked structures. Machine-level implementation structures. Storage management. Programming language implementation structures. Sorting and searching. Examples of use of information structures. 3 hrs. lect., 2 hrs. lab. Prerequisite: CS 141 or CS 210 or consent of instructor.

405-4 *Case Studies in Information Systems* Case studies of existing and proposed computer-based information systems, including "Management Information Systems." Particular systems selected on basis of general interest of the system itself and availability of high quality written material describing the system in detail. 3 hrs. lect., 2 hrs. lab. Prerequisite: CS 400.