and unknown signals, estimation of signal parameters, signal resolution.

7640 Information Theory, Coding, and Cryptography (3) Prereq.: EE 4660 or equivalent. Measures of information, channel capacity, Shannon and Huffman coding, rate-distortion theory, source and channel coding, cyclic codes, BCH and Golay codes, convolutional codes, problems of data security, probabilistic ciphers, computational complexity ciphers.

7660 Reliability of Computer Systems (3) Prereq.: EE 4660 or equivalent. Sequences of random variables, renewal processes, Markov chains, and queuing models.

7670 Communication Networks (3) Prereq.: EE 7660. Protocols, performance, and implementation of the data link layer and the network layer of communication networks.

7672 Introduction to Broadband Networks (3) Prereq.: EE 7660. Theory, implementation, and performance analysis of switch architectures and broadband integrated networks; traffic and congestion control.


7700 Advanced Topics in Computer Engineering (3) May be taken for a max. of 12 hrs. of credit when topics vary.

7710 Digital Logic (3) Prereq.: EE 3750 or equivalent. Mathematical foundations of Boolean algebra; vector switching functions, Boolean differential calculus, and fault detection.

7715 Numerical Arithmetic (3) Prereq.: EE 3755 or equivalent. Number systems; arithmetic algorithms; high performance adders, multipliers, dividers; floating-point arithmetic; residue number systems; hardware implementation.

7720 Advanced Computer Architecture (3) Prereq.: EE 4720 or equivalent. Advanced topics in computer architectures; vector processing; parallel processing and interconnection networks.

7725 Interconnection Networks (3) Prereq.: EE 4720 or equivalent. Interconnection network theory, analysis, and implementation; shared memory, coherent caches, and related topics.

7728 Multiprocessor Computer System Design (3) Prereq.: EE 4720 or equivalent. Symmetric shared memory multiprocessors, distributed shared memory systems, simultaneous multithreading, and chip-multiprocessors.

7730 Image Analysis I (3) Prereq.: EE 4120 or equivalent. Basic concepts in the representation of digital images; image processing; hardware and software, applications, 2-D transforms, preprocessing, texture analysis, and edge detection; emphasis on applications to practical problems.

7740 Image Analysis II (3) Prereq.: EE 4660 and 7730. Continuation of EE 7730. Formal mathematical treatment of image segmentation, shape analysis, texture analysis, and scene analysis.

7745 Neural Networks and Iterative Maps (3) Prereq.: EE 4745 or equivalent. Neural network approach to artificial intelligence; general properties of iterative maps; mapping networks for pattern recognition; optimization; genetic algorithms; implementation of hardware.

7750 Machine Recognition of Patterns (3) Prereq.: EE 4660 or equivalent and knowledge of programming language. Bayesian decision theory and pattern analysis; design of deterministic, stochastic, and fuzzy classifiers; unsupervised learning; feature selection. A strong background in EE 7755 and EE 3550 or equivalent is recommended. Switch level fault models, test generation for combinational and sequential circuits, YSI testing, design for testability.

7765 Distributed Computing System Reliability (3) Prereq.: EE 3140 and 4720 or equivalent. Reliability measures, standards, evaluation, and bounds; multimedia and statistical dependent failure analysis; distributed and parallel system reliability and availability, graceful degradation, performance, software reliability.

7770 Networking Principles (3) Prereq.: EE 4170 or equivalent. Internet concept, networks, and transport layer, IP switching, Routing techniques, Internet security, Firewalls, Intrusion detection.

7780 Software Design Principles (3) Prereq.: CSC 3102 or equivalent. Engineering approach to computer software development. Structured and modular programming concepts; software design and management; program testing and correctness proofs; diagnostic tools; software measures; other topics. Permission of instructor.

7785 Program Parallelization (3) F Prereq.: EE 3755 or equivalent. Analysis and optimization of programs for a variety of architectures: instruction level parallelism, direct execution on an ethnographic design. Formal models of computers and computations.

7795 Models and Methods for Parallel Computation (3) Prereq.: EE 4740 or consent of instructor. Abstract models of parallel computation; algorithms, complexity, and simula-

tions.

9000 Thesis Research (1-12 per sem.) Prereq.: permission of department. 9900 Dissertation Research (1-12 per sem.) Prereq.: permission of department. S/TU grading.

ENGINEERING • ENGR

1050 Introduction to Engineering (2) Introduction to engineering history, disciplines, and principles of design.

2050 Undergraduate Seminar (1) For engineering students only. Pass-Fail grading. Topics related to academic, professional, and career development for engineering students. Speakers will include on-campus representatives, industrial, governmental and consulting professionals, and education experts.

2785 Manufacturing, Technology & Society (3) Su History and development of manufacturing and technology and its influence on production, society, and environment. Course available only as part of a study abroad program.

9000 Dissertation Research (1-12 per sem.) S/TU grading.

ENGLISH • ENGL

Students who are not exempt will be required to pass one, two, or three English composition courses. Placement level depends on ACT/SAT/AP scores, a placement theme, or prior college composition courses. Be taken progressively. The completion of English 2000 or its equivalent (English 1005 for international students, or approved transfer credit) is required of all students.

The satisfactory completion of English 1001 or equivalent credit is prerequisite for all English courses numbered 2000 and higher.

General education courses are marked with stars (★).

0004 English Composition (5) For international students whose diagnostic tests indicate the need for intensive basic writing skills. Pass-no credit grading. Not for degree credit. Required during the first semester of residence for all international students (graduates, undergraduates, and transfer students) who are not exempt and for the fall semester immediately following the placement examination required of all new international students.

1001 English Composition (3) Placement by department. Introduction to writing in forms of expressive and informative discourse.

1004 English Composition (3) Prereq.: ENGL 0004 or placement by department. For international students. Same as ENGL 1000/1001, with emphasis on usage and idiom problems specific to international students. Required during the first semester of residence for all international students (graduates, undergraduates, and transfer students) who are not exempt on the basis of the placement examination required of all new international students.

1051 Spoken English for International Graduate Assistants (3) Prereq.: oral interviews and permission of department. For current and potential international graduate assistants only. Pass/no credit grading. May be taken for a max. of 9 sem. hrs. of credit. Developing spoken English skills (pronunciation, stress, intonation, rhythm); improving overall comprehensibility through tasks/activities, drills, and videotaped oral presentations.

2000 English Composition (3) Prereq.: ENGL 1001 or equivalent and permission of the instructor. Credit will not be given for both ENGL 2000 and 3011. Theory and practice of exposition, description, and narration.

2002 Business Writing (3) Credit will not be given for both ENGL 2002 and 2010. Preparing business documents such as reports, articles, and letters; oral presentation of reports.

2175 The Civil War in Literature (3) Portrayal of the Civil War in fiction, poetry, drama, diaries, and letters.

2183 American Authors from the Colonial Period to the Present (3) Fiction, poetry, essays, and drama of American authors from the Colonial period to the present.

2202 Business Writing for International Students (3) Credit will not be given for both ENGL 2002 and 2102. Preparing business documents such as reports, articles, and letters; oral presentation of reports.

2231 Reading Film as Literature (3) Introduction to film as literature; mastery of film language and literary bases; fictional narrative and drama; film classics.

2270 Major American Authors (3) Selected major American authors from the Colonial period to the present.

2300 Interpreting Discourse (3) Study of and writing about discourse forms (fiction, popular and critical texts, technical and legal documents), using linguistic, rhetorical, and cultural analysis.

2423 Introduction to Folklore (3) Also offered as ANTH 2423. Folklore genres of the world; sources of folklore; literary, psychological, sociological, anthropological, and historical approaches to folk material; relationships between folklore and written literature.

2593 Images of Women: An Introduction (3) Critical analysis of women's representations, addressing a range of traditional and/or popular genres, historical periods, and/or critical approaches; emphasis on developing textual and interpretative skills; section emphasis may vary, consult departmental handbook.

2673 Literature and Ethnicity (3) Literature of African-American, Latin-American, and other ethnic groups.

2674 Introduction to African-American Literature (3) Major figures and popular texts of black American literature, including fiction, poetry, drama, and essays; influence of genre on the articulation of common political and social themes.

2680 Description of English (3) Examination of what every English speaker has internalized about
English, including sentence structure, sound patterns, and word formation.

3223 Survey of Popular Genres (3) Survey of such genres as detective, western, thriller, science fiction, fantasy, drame, romance, detective fiction, science fiction, western, situation comedies.

3224 A Survey of Literature (3) See also EDCI 3223. Critical analysis and survey of literatures with adolescents as main characters and written for adolescent and adult audiences.

3226 Literature and Religion: an Overview (3) Also offered as REL 3226. Comparative analysis of world views in representations of religious concepts; students will study major religious and philosophical texts; religious influences and practice of the ritual interpretation of literary texts; works studied may include Aeschylus, Dante, Shakespeare, Dante, and Walker Percy.

3300 Rhetoric: Texts and Historical Contexts (3) DEVELOPMENT OF RHETORIC AND WRITING WITHIN THEIR CULTURAL CONTEXTS; MODES OF WRITING AND RHETORIC PARTICULAR TO HISTORICAL PERIODS, CLASSICAL TO MODERN.

3301 Writing: Practice, Pedagogy, and History (3) CULTURAL, TECHNOCENTRIC, AND HISTORICAL INFLUENCES ON WRITING, THE TEACHING OF WRITING, AND TODAY'S TEACHING PRACTICES.

3310 Historical Perspectives on Language Issues (3) A Writing intensive course. Survey of major issues in the history of language study.

3384 Cultural and Textual Studies (3) INTRODUCTION TO THE THEORY AND PRACTICE OF CULTURAL STUDIES; READING OF THEORETICAL TEXTS AND CRITICAL APPROACHES TO LITERARY AND VISUAL WORKS; AUTObiographies, rHETORical, AND LEGAL DOCUMENTS.

4031 The Study of Folklore (3) See ANTH 4301. Survey of the major approaches to the study of folklore and the significance of gender for the author, the reader, and the work itself; connections between texts and society; literary influences and relative importance of the various approaches to the study of folklore.

4674 Survey of African-American Literature (3) Literature of the black experience in the U.S. from slave narratives to the present.

3716 Discourse of English (3) REGIONAL AND SOCIAL APPLICATION TO PRONUNCIATION, GRAMMAR, AND VOCABULARY.

3720 Method of Teaching English as a Second Language (3) Theories and practical approaches for teaching English as a second language to elementary, secondary, and adult education students.

5200 Independent Study (1-3) May be taken for a max. of 3 hrs. of credit, and 3 hrs. credit for any topic. May be taken for a max. of 6 sem. hrs. of credit when topics vary.

5400 Special Projects for Creative Writing Majors (3) PREREQ.: junior status. May be taken for a max. of 9 hrs. of credit when topics vary. May be taken for a max. of 6 sem. hrs. of credit when topics vary. May be taken for a max. of 6 sem. hrs. of credit when topics vary. May be taken for a max. of 9 hrs. of credit when topics vary. May be taken for a max. of 9 hrs. of credit when topics vary.
such as "The Avant-Garde Movements in the Arts," "Nationalism and Literature," "War Poetry," "The Extraparliamentary."