COURSE DESCRIPTIONS

CLT 235-G Interdisciplinary Study of Film
An inquiry into the aesthetics, history, and theory of film as it relates principally to literature but also to disciplines such as art, music, psychology, and cultural history.
Prerequisite: U3 or U4 standing
Advisory Prerequisites: One course in literature; HUM 201 or 202 or THR 117
3 credits

CLT 361-G Literature and Society
An inquiry, interdisciplinary in nature, into the relationship between the events and materials of political and social history and their effect on the form and content of the literature of a period. Also subserved under the rubric Literature and Society is the topic Literature and Psychology. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes.
Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two courses in literature
3 credits

CLT 386-G Literature and the Arts
An inquiry into the aesthetic milieu (including the plastic arts, theatre, and music) and its relationship to the form and content of the literature of a period. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes.
Prerequisite: U3 or U4 standing
Advisory Prerequisites: Two courses in literature
3 credits

CLT 475, 476 Undergraduate Teaching Practica I, II
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In CLT 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.
Prerequisites to CLT 475: U4 standing; permission of instructor and chairperson
Prerequisites to CLT 476: CLT 475; permission of instructor and chairperson
3 credits per course, S/U grading

CLT 487 Independent Reading and Research
Intensive reading and research on a special topic undertaken with close faculty supervision. May be repeated.
Prerequisites: Permission of instructor and department
6-9 credits, S/U grading

CLT 495 Comparative Literature Honors Project
A one-semester project for comparative literature majors who are candidates for the degree with departmental honors. The project involves independent study under close supervision of an appropriate faculty member, and the written and oral presentation to the department faculty colloquium of an honors thesis.
Prerequisites: Permission of instructor and department
3 credits

CME

Chemical and Molecular Engineering

CME 101 Introduction to Chemical and Molecular Engineering
Integrates students into the community of the College of Engineering and Applied Sciences and the major in Chemical and Molecular Engineering with a focus on personal and institutional expectations. Emphasizes the interdisciplinary role of the chemical engineering profession in the 21st century. Includes consideration of professional teamwork and the balance of professional growth with issues of societal impact.
3 credits

CME 300 Writing in Chemical and Molecular Engineering
See “Requirements for the Major in Chemical and Molecular Engineering, Upper-Division Writing Requirement.”
Prerequisites: CME major; U3 or U4 standing; WRT 102
Corequisite: CME 310
S/U grading

CME 304 Chemical Engineering Thermodynamics I
First and second laws of thermodynamics, PVT behavior of pure substances, equations of state for gases and liquids, phase equilibria, mass and energy balances for closed and open systems, reversibility and equilibrium, application of thermodynamics to flow processes, heat effects during chemical reactions and combustion.
Prerequisites: PHY 132; CHE 132; CSE 130 or ESG 111 or MEC 112 or ESE 124
3 credits

CME 310 Chemical Engineering Laboratory I: Unit Operation and Fundamentals
Prerequisites: CME 304
Corequisite: CME 300
2 credits

CME 312 Material and Energy Balance
Introduces analysis of chemical processes using the laws of conservation and energy as they apply to non-reacting and reacting systems. Integration of the concepts of equilibrium in physicochemical systems, and utilization of basic principles of thermodynamics. Numerical methods used in the design an optimization of chemical engineering processes. Solution of complex chemical engineering problems.
Prerequisites: ESG 111 or MEC 112; CHE 132 and 134; AMS 261 or MAT 205; CME 304
3 credits

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CME 314 Chemical Engineering Thermodynamics II
Equilibrium and the Phase Rule; VLE model and K-value correlations; chemical potential and phase equilibria for ideal and non-ideal solutions; heat effects and property changes on mixing; application of equilibria to chemical reactions; Gibbs-Duhem and chemical potential for reacting systems; liquid/liquid, liquid/solid, solid/vapor, and liquid/vapor equilibria; adsorption and osmotic equilibria; steady state flow and irreversible processes. Steam power plants, internal combustion and jet engines, refrigeration cycle and vapor compression, liquefaction processes.
Prerequisites: CME 304
3 credits

CME 318 Chemical Engineering Fluid Mechanics
Introduces fluid mechanics. Dynamics of fluids in motion; laminar and turbulent flow, Bernoulli’s equation, friction in conduits; flow through fixed and fluidized beds. Study of pump and compressor performance and fluid metering devices. Includes introduction to microfluidics.
Prerequisites: AMS 261 (or MAT 203 or 205); PHY 131 (or 125 or 141)
3 credits

CME 320 Chemical Engineering Laboratory II: Chemical and Molecular Engineering
Introduction and operation of a continuous unit handling of air-sensitive/water-sensitive materials, sonolytic and thermal techniques for materials synthesis, preparation of polymer nano-composites and nano-sized materials.
Prerequisite: CME 310
2 credits

CME 322 Chemical Engineering Heat and Mass Transfer
Heat transfer by conduction, principles of heat flow in fluids with and without phase change, heat transfer by radiation, heat-exchange equipment. Principles and theory of diffusion, mass transfer between phases, distillation, leaching and extraction, fixed-bed membrane separation, crystallization.
Prerequisite: CME 318
3 credits

CME 323 Reaction Engineering and Chemical Kinetics
Prerequisites: CME major, U3 standing; CME 312 and 314
3 credits

CME 327 Molecular Modeling for Chemical Engineers
Molecular modeling techniques and simulation of complex chemical processes. Use of Monte Carlo methods and Molecular Dynamics methods. Emphasis on the simulation and modeling of biopolymer systems.
Prerequisites: PHY 132; ESG 111 or MEC 112; AMS 261 or MAT 203; AMS 361 or MAT 303
3 credits

CME 401 Separation Technologies I
Fundamentals of separations. Introduction to standard classical and advanced separation methods and their relative merits and limitations. Distillation, crystallization, filtration, centrifugation, absorption, and stripping methods. Includes fundamentals of chromatography.
Prerequisites: CME major, U3 or U4 standing; CME 325
3 credits

CME 402 Separation Technologies II
Prerequisite: CME 401
3 credits

CME 410 Chemical Engineering Laboratory III: Instrumentation, Material Design, and Characterization
Synthesis of unsupported nanosized metal and nano-sized metal in a polymer. Characterization of synthesized nano materials by modern spectroscopic techniques (TEM, XRD, FTIR, and XPS). Data analysis and interpretation.
Prerequisite: CME 320
2 credits

CME 420 Chemical Engineering Laboratory IV: Directed Research
Directed laboratory research or internship in industry. Includes original research project selection and a formal report preparation.
Prerequisite: CME 410
3 credits

CME 440 Process Engineering Design I
Classical methods of chemical process engineering, advanced mathematical techniques, and computer software for efficient and accurate process design and development. Mini-project design.
Prerequisites: CME major; U3 or U4 standing; CME 320 and 327
3 credits

CME 441 Process Engineering Design II
Major design project: a review of engineering design principles; engineering economics, economic evaluation, capital cost estimation; process optimization; profitability analysis for efficient and accurate process design.
Prerequisites: CME 401 and 440
3 credits

CSE 101 Introduction to Computers and Information Technologies
An introduction to the basics of personal computing and information technologies intended primarily for students majoring in humanities, social and behavioral sciences, or business management. Topics include principles of personal (single-user) computer systems; office automation; and information in a modern, networked (multi-user) computing environment. Emphasis is on conceptual understanding of personal computing rather than use of specific hardware or software. Required participation in computer laboratory. May not be taken for credit in addition to EST 100 or after any CSE or ISE course.
Prerequisite: Satisfaction of entry skill in mathematics requirement (Skill I) or satisfactory completion of D.E.C. C
3 credits

CSE 102 Introduction to Web Design and Programming
An introduction to the design of Web pages, specifically the development of browser and device independent HTML, with an emphasis on the XHTML standard. Includes the use of style sheets (CSS) and tools for page layout and verification. HTML is presented as a mark-up language, exploring the rules of HTML elements and attributes. Students learn the separation of page viewing information from the HTML through CSS style sheets as well as the use of block layout without using HTML tables. Additional topics include display properties including text, color, image, and graphic elements as well as approaches to HTML validation and techniques.
Advisory Prerequisite: CSE 101 or basic computer skills
3 credits

CSE 110 Introduction to Computer Science
An introduction to fundamentals of computer science. Topics covered include algorithmic design; problem-solving techniques for computer programming; fundamentals of digital logic and computer organization; the role of the operating system; introductory programming methodology including variables, assignment statements, control statements, and subroutines (methods); programming paradigms; the compilation process; theoretical limits of computation; and social and ethical issues. Intended for students who have not taken any college-level computer science course containing programming assignments in a high-level programming language.
Prerequisite: Level 3 or higher on the mathematics placement examination
3 credits

CSE 113-C Foundations of Computer Science I
A rigorous introduction to the conceptual and mathematical foundations of computer science with special emphasis on recursion and its applications in functional programming as well as reasoning techniques based on propositional logic and mathematical induction.
Prerequisite: One MAT course that satisfies D.E.C. category C or score of level 4 on the mathematics placement examination
3 credits

CSE 114 Computer Science I
An introduction to procedural and object-oriented programming methodology. Topics include program structure, conditional and iterative programming, procedures, arrays and records, object classes, encapsulation, information hiding, inheritance, polymorphism, file I/O, and exceptions. Software debugging and testing techniques are emphasized including an introduction to formal verification methods. Includes required laboratory.
Prerequisite: one of the following: CSE 110 or CSE 130 or ESE 124 or ESG 111 or MEC 111 or MEC 112
3 credits

CSE 125 Computer Science and Sculpture
A multidisciplinary class that surveys how computer science and computer technology are used in sculpture. Case studies with slides, videos, and software demonstrations illustrate a range of approaches of sculptors incorporating computers in their creative process. Various state-of-the-art fabrication technologies are studied (including campus facilities). Mathematical foundations are emphasized so that students can recognize them when analyzing sculpture and choose the correct tool when designing. These ideas are reinforced with programming using a range of available software and inexpensive construction materials such as paper, cardboard, and foamcore.
Prerequisite: Level 3 on Math Placement Exam or MAP 103
3 credits

CSE 130 Introduction to Programming in C
Introduces programming concepts using the C language. Variables, data types, and expressions, Conditional and iterative statements, functions, and structures. Pointers, arrays, and strings. Scope of variables and program organization. Includes program-