914 **Formal Methods in Software Development**
Fall. 3(3-0) P:M: (CSE 814) RB: Undergraduate courses in software engineering and logic. R: Open only to students in Department of Computer Science and Engineering. SA: CSE 914
Current research in selected areas of software engineering such as: approaches for the incorporation of formal methods in software development; current projects using formal methods in software engineering; object oriented analysis and development techniques; and approaches for the incorporation of user interface analysis and design in software development.

920 **Selected Topics in High Performance Computer Systems**
Spring of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. P:M: (CSE 822) R: Open only to Computer Science and Engineering majors or approval of Department. SA: CSE 920
Design of high performance computer systems. Seminar format.

921 **Advanced Topics in Digital Circuits and Systems**
Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Electrical and Computer Engineering. Administered by Department of Electrical and Computer Engineering, SA: EE 921
Topics vary each semester.

921A **Testable and Fault-tolerant Digital Systems**
Fall of odd years. Spring of odd years. 3(3-0) Interdepartmental with Electrical and Computer Engineering, Administered by Department of Electrical and Computer Engineering, RB: (ECE 809 and ECE 813) SA: EE 921A

960 **Selected Topics in Algorithms and Complexity**
Spring of odd years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: (CSE 830 and CSE 860) R: Open only to graduate students in the Department of Computer Science and Engineering. Approval of department. SA: CSE 960
Current research in the general theory of algorithms and computational complexity.

980 **Selected Topics in Database Systems**
Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. RB: (CSE 880) R: Open only to Computer Science or Electrical Engineering majors. SA: CSE 980
Recent developments in areas such as distributed and parallel database systems, object oriented database systems, knowledge base and expert databases.
Construction Management Program—CMP

222  Statics and Strengths of Materials  
Spring. 3(3-0) P:M: (CMP 210 and CMP 211) and (MTH 124 or MTH 132 or LBS 118) and (PHY 183 or PHY 231 or PHY 231B or PHY 231C) SA: BCM 222 Not open to students with credit in ME 221 or ME 222. Equilibrium of forces. Body diagrams. Force components. Bending moments. Stress and strain. Mechanical properties of materials. Beams and trusses. Computer applications. Indeterminate structures.

230  Utility Systems  
Spring. 4(4-0) P:M: (CMP 210 and CMP 211) SA: BCM 230 Heating, cooling, ventilating, electrical, gas, lighting, water, waste water, telecommunications, fire protection, safety, security, and control systems in residential and commercial construction. Applicable codes.

305  Site Construction and Measurement  
Fall. 3(2-2) P:M: (CMP 230) R: Open only to juniors or seniors in the Construction Management major. SA: BCM 305 Site construction methods, materials and equipment for buildings, soil, foundation, erosion, and storm water. Layout, leveling, surveying, and underground utilities.

315  Construction Quantity Surveying  
Spring. 3(2-2) P:M: (CMP 305) and (CSE 101 or CSE 131 or CSE 231 or CSS 110 or LBS 126) R: Open only to juniors and seniors in the Construction Management or Civil Engineering major. SA: BCM 315 Measurement of quantities for construction projects. Work breakdown structure. Industry standards.

322  Structural Systems  
Fall. 3(3-0) P:M: (CMP 222) or (ME 221 or ME 222) R: Open only to juniors or seniors in the Construction Management or Civil Engineering majors. SA: BCM 322 Not open to students with credit in CE 406. Structural design using wood, steel and concrete. Beams, columns, footings, and foundation walls. Loading, soils.

325  Real Estate Principles and Construction Finance  
Fall. 4(4-0) P:M: (EC 201 or EC 202 or EC 251H or EC 252H) and (MTH 124 or MTH 132 or LBS 118) R: Open only to juniors or seniors in the Construction Management major or approval of department. SA: BCM 325 Financial methods and instruments utilized in construction, rehabilitation, development, and purchase of real estate. Terms, contracts, valuation, brokerage, taxation, risk, and interest rate analysis.

328  Construction Presentation Graphics  
Fall. Spring. 2(1-2) P:M: (CMP 230) and (CSE 101 or CSE 131 or CSE 231 or CSS 110 or LBS 126) R: Open only to juniors or seniors in the Construction Management major. SA: BCM 328 Graphic communication methods used in construction organizations.

335  Land Development  
Spring. 3(3-0) P:M: (CMP 211 and CMP 305) and (CMP 325 or UP 458) R: Open only to juniors or seniors in the Construction Management or Civil Engineering or Landscape Architecture or Urban and Regional Planning major. SA: BCM 335 Methods and practices of land development. Market research. Financial feasibility. Land use regulations. Legal documentation. Site analysis and design. Case studies.

385  Construction Documents and Contracts (W)  
Spring. 3(3-0) P:M: (CMP 305) Completion of Tier I writing requirement. R: Open only to juniors and seniors in the Construction Management or Civil Engineering or Landscape Architecture major. SA: BCM 385 Construction contracts for commercial and residential projects. Contract procedures, bidding, changes, substitutions. Specifications. Insurance, bonding, claims, disputes, and payments. Responsibilities of owners and contractors.

401  Construction Safety Management  
Spring. 3(3-0) P:M: (CMP 305) RB: (CMP 385 or CMP 423 or concurrently) R: Open only to juniors or seniors in the Construction Management or Civil Engineering major. SA: BCM 401 Construction safety with Occupational Safety and Health Administration (OSHA) emphasis. General safety and health provisions, records, and safety management programs. Personnel protection and life saving equipment. Economic impact of safety program.

411  Construction Project Scheduling  
Fall. 3(2-2) P:M: (STT 200 or STT 201 or STT 315 or STT 421) and (CMP 315 and CMP 322) R: Open only to juniors or seniors in the Construction Management or Civil Engineering major. SA: BCM 411 Basic construction project scheduling procedures. Work breakdown structure, critical path method, and scheduling logic. Activity durations, status reports, resource allocation, and control.

415  Cost Estimating and Analysis  

423  Construction Project Management  
Fall. Spring. 3(3-0) P:M: (CMP 385 and CMP 411 or concurrently and CMP 415 or concurrently) R: Open only to juniors in the Construction Management or Civil Engineering major. SA: BCM 423 Construction management principles and practices. Project planning and controls.

435  Residential Building Projects (W)  
Spring. 3(1-4) P:M: (ACC 201 and ACC 202) or (ACC 230) and (CMP 328 and CMP 353 and CMP 423 or concurrently) and completion of Tier I writing requirement. R: Open only to seniors in the Construction Management major. SA: BCM 435 Development of a residential project and business plan.

436  Commercial Building Projects (W)  
Spring. 3(1-4) P:M: (ACC 201 and ACC 202) or (ACC 230) and (CMP 328 and CMP 353 and CMP 423 or concurrently) and completion of Tier I writing requirement. R: Open only to seniors in the Construction Management major. SA: BCM 436 Evaluation, procurement, and management of commercial building projects.

490  Independent Study  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to Construction Management majors. Approval of department; application required. SA: BCM 490 Special problems in acquisition and development of residential land, design, construction technology, building materials, finance, marketing, construction management, or land use codes and regulations.

491  Special Topics in Building Construction Management  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P:M: (CMP 210) R: Open only to Construction Management majors. Approval of department. SA: BCM 491 Topics such as computer methods in building construction management, construction technology, solar energy, special land use codes, or new technology management.

493  Professional Internship in Building Construction Management  
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to juniors or seniors in the Construction Management major. Approval of department: application required. A student may earn a maximum of 6 credits in all enrollments for any or all of these courses: ABM 493, AEE 493, ANR 493, ANS 493, CMP 493, CSS 493, EEP 493, FIM 493, FSC 493, FW 493, HRT 493, PKG 493, PLP 493, PRR 493, and RD 493. SA: BCM 493 Supervised professional experiences in agencies and businesses related to a student's major field of study.

COUNSELING, CEP 
EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION

Department of Counseling, Educational Psychology and Special Education
College of Education

150  Reflections on Learning  
Fall, Spring, Summer. 3(3-0) Interdepartmental with Teacher Education. Administered by Department of Teacher Education. Students' experiences as learners in comparison to psychological, sociological, and anthropological theories and assumptions about learning and teaching in and out of school.