

CIVIL ENGINEERING (CE)

CE 534 Geometric Highway Design	3 Credit hours	
Highway planning and design, including the capacity, horizontal alignment, vertical alignment, roadside design, traffic control, and other related aspects. Types of facilities discussed will include roadways, sidewalks, intersections, and interchanges.		
Grade Mode: Normal Grading Mode		
CE 538 Pavement Design	3 Credit hours	
Design of highway pavement systems, subgrades, subbases and bases, soil stabilization, flexible and rigid pavements; cost analysis and pavement selection; traffic data collection; drainage; earthwork; pavement evaluation and maintenance.		
Grade Mode: Normal Grading Mode		
CE 602 Structural Mechanics	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 604 Buckling of Struct Mem &	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 605 Structural Vibrations	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 611 Plastic Design	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 612 Advanced Steel Design	3 Credit hours	
Background of AISC 360, emphasizing building applications. Analysis method for second-order effects. Composite member design. Plate girders. Splices and bracing connections. Eccentric connections. Wind and seismic applications.		
Grade Mode: Normal Grading Mode		
CE 614 Advanced Concrete Design	3 Credit hours	
Background of ACI 318, emphasizing building applications. Precast elements. Moment frames and shear walls. Continuous construction. Foundations and earth-retaining structures. Two-way slab design methods. Strut-and-tie analogies. Column supported slabs. Modern reinforced concrete design procedures; comparison of standard design codes; review of research on behavior of reinforced concrete structures; projection to future changes in design and construction practices.		
Grade Mode: Normal Grading Mode		
CE 616 Prestressed Concrete Design	3 Credit hours	
Behavior and design of prestressed concrete beams, columns, and beam-columns, emphasizing highway bridge applications. Methods of prestressing and loss estimation for precast and cast-in-place elements. Design of prestressed concrete structures; design for flexure, shear, and torsion; camber and deflections; continuity; connections; fire rating; and review of research and projection to changes in practices.		
Grade Mode: Normal Grading Mode		
CE 618 Bridge Engineering	3 Credit hours	
Analysis, design, and rating of bridges according to AASHTO specifications, emphasizing steel superstructures. Detailing of elements and systems based on strength, serviceability, constructability, and fatigue requirements. An overview of design of highway bridges and an introduction to maintenance of highway bridges; history of bridge engineering, types, design rules, loads, inspection, rating and preventive maintenance, aesthetics.		
Pre-req: CE 616.		
Grade Mode: Normal Grading Mode		
CE 621 Advanced Soil Mechanics	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 622 Foundation Engineering 2	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 623 Advanced Soil Testing Theory	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 624 Design of Earth Structures	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 626 Groundwater Investigation	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 631 Geometric Design of Highways	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 632 Highway Materials 1	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 633 Highway Materials 2	3 Credit hours	
Grade Mode: Normal Grading Mode		
CE 634 Traffic Engineering	3 Credit hours	
Design and application of signs, markings, and signals; timing of isolated and interconnected signals; speed regulation on one-way streets; capacity and analysis of highway facilities.		
Grade Mode: Normal Grading Mode		
CE 635 Eval of Transportation Systems	3 Credit hours	
Concepts of transportation economic analysis, transportation costs and benefits, needs studies, finance and taxation, methods of evaluation of plans and projects, environmental impact assessment.		
Grade Mode: Normal Grading Mode		
CE 636 Transportation Planning	3 Credit hours	
Techniques used to plan urban transportation systems; data collection, trip generation, trip distribution, mode choice, traffic assignment, modeling and evaluation techniques; travel demand modeling.		
Grade Mode: Normal Grading Mode		
CE 637 Highway Safety Engineering	3 Credit hours	
Traffic safety studies including: crash analysis, control and geometry improvements, hazard and countermeasures identification, before-and-after studies; data collection and computer tools for highway traffic and safety evaluation.		
Grade Mode: Normal Grading Mode		
CE 639 Infrastructure Management	3 Credit hours	
Application of decision analysis, mathematical programming, performance modeling and various heuristics to develop management plans for transportation infrastructure assets, primarily focusing on highway pavements and bridges.		
Grade Mode: Normal Grading Mode		
CE 650 Special Topics Civil Engr	3 Credit hours	
Selected topics of special and current interest to civil engineers.		
Grade Mode: Normal Grading Mode		

CE 651 Spec Topics Civil Engr	3 Credit hours
Selected topics of special and current interest to civil engineers.	
Grade Mode: Normal Grading Mode	
CE 652 Spec Topics Civil Engr	3 Credit hours
Selected topics of special and current interest to civil engineers.	
Grade Mode: Normal Grading Mode	
CE 680 Special Topics	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 681 Water & Wastewater Engr Dsgn 1	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 682 Water & Wastewater Engr Dsgn 2	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 684 Biol & Physiochem Process	3 Credit hours
CE 685 Hydrology	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 686 Hyd/Sedi of Surface Mined Land	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 687 Engineering Geology	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 690 Special Topics in Civil Engr	1-6 Credit hours
Grade Mode: Normal Grading Mode	
CE 715 Adv Matrix Meth of Struct Anal	3 Credit hours
Grade Mode: Normal Grading Mode	
CE 790 Advanced Independent Study	1-6 Credit hours
Grade Mode: Normal Grading Mode	
CE 799 Research	1-12 Credit hours
Grade Mode: Normal Grading Mode	