

C&EE 142 -- Design of Reinforced Concrete Structures

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<u>TOPIC</u>	<u>WEEK</u>
Introduction	1
Loads and load paths	
Codes and recommendations	
Materials	
Beams: Flexural Design	2
Load-deformation and moment-curvature response	
Cracking, Yielding, and Ultimate Moments	
Whitney Stress Block	
Beams: The design process: Demand and Capacity	3
Over-, Under, and Balanced Conditions for Beams	
Singly-reinforced beams (analysis/design)	
Beams: Doubly-reinforced beams (analysis/design)	4
Multiple layers of reinforcement (analysis)	
T-beams (analysis/design)	
Beams: Shear Design	5
Shear failure modes	
Shear resisting mechanisms: concrete, reinforcement	
Selection of shear reinforcement	
Development, Anchorage, and Splicing of reinforcement	6-7
Bond	
Development length	
Hooks and Mechanical anchors	
Termination of reinforcement	
Splices	
Columns subjected to axial load and bending moment	8-9
Interaction diagrams	
Column analysis, Column design	
Design Aids	
One-way slabs	10
Analysis assumptions/methods	
Minimum depth requirements	
Design requirements	