

EM 324 | Mechanics of Materials

Learning Modules	Topics	Readings	Homework	Learning Activities and Assessments
Module 1: Topics 1 to 4 Available: Mon, May 9 th	<ol style="list-style-type: none"> Introduction; statics review Normal & shear stresses Allowable stress design Deformation; normal & shear strain 	1.1 to 2 1.3 to 5 1.5 & 6 2.1 & 2	1: 8, 12, 15 1: 42, 53, 61 1: F19,F22,70 2: 4, 5, 30	<u>Before Wednesday May 25th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Module 2: Topics 5 to 8 Available: Mon, May 16 th	<ol style="list-style-type: none"> Mechanical properties of materials Determinate axial loading Indeterminate axial loading Thermal effects 	3.1 to 4&6 4.1 to 3 4.4 & 5 4.6	3: 4, 8, 10 4: 5, 8, 13 4: 35, 42 4: 68, 76, 83	<u>Before Wednesday June 1st (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Exam 1 Topics 1 to 8 <u>Thursday May 26th</u>				
Module 3: Topics 9 to 12 Available: Mon, May 23 rd	<ol style="list-style-type: none"> Torsional shear stress & strain Power transmission Angle of twist (Determinate) Angle of twist (Indeterminate) 	5.1 & 2 5.3 5.4 5.5	5: 3, 8, 10 5: 31, 46, 151 5: 62, 64, 69 5: 80, 84	<u>Before Wednesday June 8th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Module 4: Topics 13 to 18 Available: Mon, May 30 th	<ol style="list-style-type: none"> Internal shear & moment equations Shear & moment diagrams Normal stress due to flexure Flexure stresses Shear stress due to flexure Flexure induced forces (Shear flow) 	6.1 6.2 6.3 & 4 6.4; 7.1&2 7.2 7.3 to 4	6: F3, 8, 21 6: 5, 41 6: 48, 61, 64 6: 68 7: 6, 8 7: 10, 21, 72 7: 42, 44, 73	<u>Before Wednesday June 15th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Exam 2 Topics 9 to 18 <u>Thursday June 16th</u>				
Module 5: Topics 19 to 22 Available: Mon, June 6 th	<ol style="list-style-type: none"> Thin-walled pressure vessels State of stress Combined loading Combined loading in 3D 	8.1 8.2 8.2 8.2	8: 2, 12, 13 8: 20, 21, 39 8: 35, 76, 82 8: 56, 64	<u>Before Wednesday June 22nd (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos

				<ul style="list-style-type: none"> Complete the assigned HW problems
Module 6a: Topics 23 to 27 Available: Mon, June 13 th	23. Stress transformation 24. Principal stresses; max shear 25. Mohr's circle for plane stress 26. Mohr's circle & abs max shear 27. Strain transformation	9.1 & 2 9.3 9.4 9.5 10.1 to 3	9: 5, 22, 28 9: 16, 32, 43 9: 60, 65, 69 9: 79, 82, 88 10: 2, 9, 16	<u>Before Wednesday June 29th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Module 6b: Topics 28 to 30 Available: Mon, June 20 th	28. Strain gages & Hooke's law 29. Stress concentrations 30. Failure theories (static load)	10.5 & 6 4.7,5.8,6.9 10.7	10: 40, 44, 48 4: 91, 5: 120, 6: 156 10: 69, 79, 82	<u>Before Wednesday July 6th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Exam 3 Topics 19 to 28 <u>Thursday June 30th</u>				
Module 7: Topics 31 to 34 Available: Mon, June 27 th	31. Deflection by integration 32. Discontinuity function method 33. Deflection by superposition 34. Indeterminate beam deflection	12.1 & 2 12.3 12.5 12.6 & 9	12: 4, 8, 16 12: 40, 44 12: 86, 91, 96 12: 120,130,131	<u>Before Wednesday July 8th (11:59pm)</u> <ul style="list-style-type: none"> Read the assigned chapters Watch the topic videos Complete the assigned HW problems
Final Exam Topics 29 to 34 <u>Friday July 8th</u>				

- All Exams are proctored.** Students are responsible for arranging for approved proctors. For more information, see the following links:
 - Proctor Information for Students: <http://www.testcenter.iastate.edu/need-a-proctor/>
 - Off-campus proctor Application: <https://www-testing-las.sws.iastate.edu/oc-proctor/application>
 - For questions related to proctoring, contact Doug Bull at ddbull@iastate.edu or Jess Haht at jhaht@iastate.edu