

Finite Element Analysis Schedule, Mech 417, J.E. Akin, Spring 2019. Revised 1/03/19

| Date | Day | Topic | Read/Review* |
|-------------|------------|--|--|
| 1/8/19 | Tue | Introduction, Linear springs | --- |
| 1/10 | Thur | SolidWorks demonstration, 1D interpolation | T2.2, E2.2-1,-2 F2.2-6, -10, S2.3-1 |
| 1/15 | Tue | Interpolation, Numerical Integration | T2.5, E2.6-1, F2.6-4, E3.1-1 S3.1-3, F3.2-1, -3, E3.2-1 |
| 1/17 | Thur | Numerical integration | T3.2, 3.5 Summary, E3.2-4 |
| 1/22 | Tue | Second Order ODEs Calculus review | F5.2-1, 5.8 Summary T4.2, F4.2-1, E4.2-2, E4.5-1 |
| 1/24 | Thur | Second Order ODEs Assembly | T8.1, E8.1-1,-2,-3,-4, S8.2-1 E8.2-3, -4, F8.3-1, E8.3-2, -3, |
| 1/29 | Tue | Second Order ODEs EBC, solve, post-process | E8.4-1, S8.5-2, -3, -4, S8.5-5, -6 |
| 1/31 | Thur | Second Order ODEs Numerical integration, symmetry | T8.6, S8.6-1, -2, -3 T8.8, 8.11 Summary |
| 2/5 | Tue | Second Order PDE's | T12.1-T12.3 |
| 2/7 | Thur | Second Order PDE's Calculus review | T12.4, T12.7, E12.9-1, -2 T12.11, T12.14, E12.14-1, |
| 2/12 | Tue | Second Order PDE's Applications | Review |
| 2/14 | Thur | Second Order PDE's Applications | T12.14(15), F12.14(15)-17, F12.14(15)-25, -30, -37 |
| 2/19 | Tue | Second Order PDE's Applications | Review T12.16(17), 12Summary |
| 2/21 | Thur | 1D Beams Applications | T10.2-4, S10.5-3, E10.6-2, E10.6-3, T10.9, S10.9-3 |
| 2/26 | Tue | Trusses and Frames Applications | T9.1, E9.1-1, T11.1, S11.1-3, F11.2-2, F11.3-1, 11.6 Summary |
| 2/28 | Thur | Stress Analysis | T13.1-6 |
| 3/5 | Tue | Stress Analysis, FE interpolation | T13.8, T13.10, T13.13 |
| 3/7 | Thur | Strain-displacement matrix Element matrices | lecture lecture |
| ----- | | Recess 3/11-15 | |
| 3/19 | Tue | Plane stress applications | lecture |
| 3/21 | Thur | Plane stress applications | lecture |
| 3/26 | Tue | Makeup Day, or Review | lecture |
| 3/28 | Thur | Vibrations | T14.1-3, E14.3-1, E14.4-1, S14.4-1 |
| 4/2 | Tue | Vibrations | S14.5-1, T14.6 |
| 4/4 | Thur | Vibrations, Membranes Plane stress vibration | T14.7 T14.11, 14.17 Summary |
| 4/9 | Tue | Transient heat transfer | T15.1-2, S15.2-1, F15.3-1 |
| 4/11 | Thur | Dynamic time history | T15.4 |
| 4/16 | Tue | Dynamic time history | T15.5, lecture |
| 4/18 | Thur | Review | Review |

Notes: T= Theory section, E=Example number, F= Figure number, S=Script number (in a figure)

J.E. Akin, *Parametric Finite Element Analysis*, Draft copy at <http://www.clear.rice.edu/mech517/Books/PFEA>