Numerical Partial Differential Equations

Finite Difference Methods by Jon Shiach

- Introduction to PDEs unit II
 Introduction to PDEs unit II
 Hyperbolic PDEs I
 Finite-Difference Approximations
 Hyperbolic PDEs II
 Finite Difference Schemes
 Extension to Multidimensions
- 5. Elliptic PDEs I 10. Systems of PDEs

Finite Volume Methods by Randy LeVeque

- 1. Derivation of Conservation Laws
- 2. Variable Coefficient Advection default
- 3. Linearization of Nonlinear Systems
- 4. Linear Hyperbolic Systems
- 5. Linear Systems Riemann Problems
- 6. Linear Systems Nonhyperbolic Cases
- 7. Introduction to Finite Volume Methods
- 8. Accuracy, Consistency, Stability, CFL Condition
- 9. Dissipation, Dispersion, Modified Equations
- 10. High resolution TVD methods
- 11. TVD Methods and Limiters
- 12. Nonlinear Scalar PDEs, Traffic flow
- 13. Nonlinear scalar and rarefaction waves
- 14. Finite Volume Methods for Scalar Conservation Laws
- 15. Admissible Solutions and Entropy Functions

- 16. Convergence to Weak Solutions and Nonlinear Stability
- 17. Nonlinear systems Shock Waves and Hugoniot Loci
- 18. Rarefaction waves and integral curves
- 19. Gas dynamics and Euler equations
- 20. Finite volume methods for nonlinear systems
- 21. Approximate Riemann solvers
- 22. Multidimensional hyperbolic problems
- 23. Fractional step methods
- 24. Multidimensional finite volume methods
- 25. Acoustics in Heterogeneous Media

Finite Element Methods by Patrick E. Farrell

1. 1A	8. 3B	15. 7 A	22. 10B	29. 13A	36. 15A
2. 1B	9. 4A	16. 7B	23. 10C	30. 13B	37. 15B
3. 1C	10. 4B	17. 8A	24. 11A	31. 13C	38. 15C
4. 2A	11. 5A	18. 8B	25. 11B	32. 13D	
5. 2B	12. 5B	19. 9A	26. 12A	33. 14A	
6. 2C	13. 6A	20. 9B	27. 12B	34. 14B	
7. 3A	14. 6B	21. 10A	28. 12C	35. 14C	

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