

Syllabus for SM212

Differential Equations

Spring Semester 2010-2011

text: *Differential Equations with Boundary-Value Problems*, 7th ed., by Dennis G. Zill and Michael R. Cullen

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23	7.3.2 Unit step functions	p278: 37, 39, 43, 48, 61, 82(b,c)
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SECTION IV - Matrices and 1st Order Systems

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32	3.3, 9.4 Euler's method for systems and higher order DEs	p357: 1, 2; p111: 10 (<i>Use Euler: $h=0.2$</i>)
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34	Appendix II.1 Matrices	pApp-18: 1, 4, 11, 13, 15, 25
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SECTION V - PDEs and Fourier Synthesis

47	12.1 Intro to PDEs (Separation of Variables)	p436: 1, 3, 6, 11
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50	11.2 Fourier Series	p407: 1, 3, 9
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52	11.3 Sine and Cosine Series	p414: 1, 2, 3, 13, 14, 25, 34
53	12.3 Heat Equation (Dirichlet)	p445: 1 (<i>Use $L=2$</i>), 2 (<i>Use $L=1$</i>)
54	12.3 Heat Equation (Neumann)	p445: 3, 4
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56	Review	
57	Test 4	
58	Review	
59	Review	

Footnotes:

For these problems, Prof. John Polking has a nice application (pplane) for drawing phase portraits:

<http://math.rice.edu/~dfield/dfpp.html>

For these problems, also graph (carefully, over several periods) the function to which each series converges.