



# Computational Methods in EE

*University of Texas at El Paso  
College of Engineering  
Department of Electrical and Computer Engineering*

*Course Calendar for*

## **EE-4386/5301** **Computational Methods in EE**

Fall 2020

CRN 19311/19306

*Course Instructor*

**Prof. Raymond C. Rumpf**

## Weekly Calendar (Subject to Change)

**NMFE** – Numerical Methods for Engineers, 7<sup>th</sup> Ed.

**CW** – Course website: [https://empossible.net/academics/emp4301\\_5301/](https://empossible.net/academics/emp4301_5301/)

**Weekly DB** – Please contribute at least one post and comments to at least three other students' posts.

	Topic	Readings	Assignments	Notes
<b>Week 1</b> 8/24 – 8/28	Class intro, syllabus, policies, introduction to MATLAB	Mathworks MATLAB Fundamentals, CW Lects. 2a & 2b	Syllabus quiz, Homework 1 MATLAB, weekly DB	
<b>Week 2</b> 8/31 – 9/4	Graphics & Visualization, Intermediate MATLAB	NMFE Chapters 1 to 4, CW Lects. 0a, 0b and 1a	Homework 2 Build Geometry in MATLAB, weekly DB	
<b>Week 3</b> 9/7 – 9/11	Linear Algebra	NFME Chaps. 9-12, CW Lects. 3a & 3b	Homework 3 Numerical Linear Algebra, weekly DB	
<b>Week 4</b> 9/14 – 9/18	Root Finding	NFME Chaps. 5-8, CW Lects. 4a & 4b	Homework 4 Root Finding, weekly DB	
<b>Week 5</b> 9/21 – 9/25	Curve Fitting	NFME Chaps. 17-20, CW Lects. 5a & 5b	Homework 5 Curve Fitting, weekly DB	
<b>Week 6</b> 9/28 – 10/2	Interpolation & Extrapolation, Numerical Integration	NFME Chaps. 21-22, CW Lects. 5c & 6a	Homework 6 Numerical Integration, weekly DB	
<b>Week 7</b> 10/5 – 10/9	Review and Q&A	All of above	Midterm Exam #1	
<b>Week 8</b> 10/12 – 10/16	Finite-Difference Approximations	NFME Chaps. 23-24, CW Lect. 6b	Homework 7 Finite-Difference Approximations, weekly DB	



Table continued...

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<b>Week 9</b> 10/19 – 10/23	Numerical Differentiation	NFME Chaps. 23-24, CW Lect. 6c	Homework 8 Numerical Differentiation, weekly DB	
<b>Week 10</b> 10/26 – 10/30	1D Finite-Difference Method	NFME 29, 30 & 32, CW Lects. 7a & 7b	Homework 9 1D Finite-Difference Method, weekly DB	
<b>Week 11</b> 11/2 – 11/6	Multi-Variable Finite-Difference Method	CW Lects. 7c	Homework 10 Slab Waveguide Analysis, weekly DB	
<b>Week 12</b> 11/9 – 11/13	2D Finite-Difference Method	CW Lects. 7d & 7e	Homework 11 Derivative Matrices, weekly DB	
<b>Week 13</b> 11/16 – 11/20	Transmission Line Analysis	CW Lect. 7e	Homework 11 Transmission Line Analysis, weekly DB	
<b>Week 14</b> 11/23 – 11/27	Time-Domain Finite-Difference Method, Review & Q&A	CW Lect. 7f	Midterm Exam #2	
<b>Week 15</b> 11/30 – 12/4	Optimization	NMFE Chaps. 13-16, CW Lects. 8a-8c	Homework 12 Optimization, weekly DB	
<b>Week 15</b> 12/7 – 12/11	Final Project		Submit presentation & multimedia	