

Week	Topics	Assignments & Due Dates
<p align="center">1 May 15-21</p>	<p>Week 1 Topics:</p> <ul style="list-style-type: none"> • Welcome and introduction • Resistor-companion simulation • State variable-based simulation • Conditions for solving ODE's • Function Formulation • Introduction to simulation engines: Forward Euler • The Runga-Kutta Algorithm • Example: Boost converter/boost converter simulation in MATLAB • Simulation Engine metrics 	<p>Coding problem 1 Sunday, May 21, 11:59 PM ET (5/22, 03:59 UTC)</p>
<p align="center">2 May 22-28</p>	<p>Week 2 Topics:</p> <ul style="list-style-type: none"> • Euler's method revisited • Runga-Kutta method revisited • Stiffness • Model-order reduction • Backwards Euler for linear systems • A-stability for trapezoidal method • Boost converter simulation in Simulink • Comments on modeling: Algebraic loops • Comments on modeling: Discrete events 	<p>Coding problem 2 Wednesday, May 24, 11:59 PM ET (5/25, 3:59 UTC)</p>
<p align="center">3 May 29-June 4</p>	<p>Week 3 Topics:</p> <ul style="list-style-type: none"> • Optimization-based design • Mathematical properties of objectives functions • Single objective optimization using Newton's Method • Review of genetics • The canonical genetic algorithm: Definitions & evolution • Real-coded genetic algorithms: Coding and decoding, crossover, gene repair, mutation • Real-coded genetic algorithms: example • Real-coded genetic algorithms: Additional operators 	<p>Homework 1 Wednesday, May 31, 11:59 PM ET (6/1, 3:59 UTC)</p> <p>Coding Problem 3 Friday, June 2, 11:59 PM ET (6/3, 3:59 UTC)</p>

Week	Topics	Assignments & Due Dates
<p style="text-align: center;">4 June 5-11</p>	<p>Week 4 Topics:</p> <ul style="list-style-type: none"> • Introduction to GOSET • Population data structure • Algorithm parameters & Statistics • Genetic operators: Diversity control, scaling, selection, death, crossover, mutation, miscellaneous • Single-objective GA examples: Rosenbrock's Function, OGBT conduction loss fitting, transfer function fitting 	<p>Coding Problem 4 Wednesday, June 7, 11:59 PM ET (6/8, 3:59 UTC)</p>
<p style="text-align: center;">5 June 12-18</p>	<p>Week 5 Topics:</p> <ul style="list-style-type: none"> • Multi-objective optimization and the Pareto-optimal front • Multi-objective optimization using Gas • GOSET multi-objective GA examples: Shaffer's Problem; Tanaka Problem • A design example • A design example: GOSET 	<p>Homework 2 Wednesday, June 14, 11:59 PM ET (6/15, 3:59 UTC)</p> <p>Homework 3 Friday, June 16, 11:59 PM ET (6/17 3:59 UTC)</p> <p>Coding Problem 5 Sunday, June 18, 11:59 PM ET (6/19, 3:59 UTC)</p>
<p style="text-align: center;">6 June 19-25</p>		<p>Coding Problem 6 Friday, June 23, 11:59 PM ET (6/25, 3:59 UTC)</p>