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Welcome and Course Information

Welcome to the course *Differential Equations for Engineers!*

A course on differential equations is typically taken by engineering students in their second year of study, after a full year of calculus. To study differential equations, students should already have a good understanding of differentiation and integration. Students should also be familiar with complex numbers and the complex exponential function, matrices and the eigenvalue problem, and partial differentiation. If you need to brush up on any of these latter topics, you can watch our supplemental videos.

To see if differential equations interests you, watch the [Promotional video](#). To get a brief overview of the course, watch the [Course Overview](#) video. If you are considering taking this course and want to assess your math skills, take the [Diagnostic Quiz](#). If you pass the quiz, then you should have no problem succeeding in the course. If you struggle with the quiz, then you may need to brush up on single variable calculus before enrolling.

Course Materials

This course is divided into six weeks, each week focusing on a specific topic. The first week is about first-order differential equations, the second and third weeks are about second-order differential equations, the fourth week is about the Laplace transform and series solution method, the fifth week is about systems of differential equations, and the sixth week is about partial differential equations. After each video, suggested math problems are posted for further practice. Within each week, the videos and problems are divided into sections, and an ungraded practice quiz is available at the end of each section. At the end of each week, there is a graded quiz that tests students' understanding of the material covered in the week.

Textbook

My lecture notes for this course can be downloaded in a pdf format at the link

<https://www.math.hkust.edu.hk/~machas/differential-equations-for-engineers.pdf>

A paperback edition of my lecture notes may also be purchased from amazon.com at the link

<https://www.amazon.com/Differential-Equations-Engineers-Mathematics/dp/B0BL9X4QWN/>

