

EE2012: Analytical Methods in ECE

Part 2: Complex Analysis & Optimization

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Acknowledgment: Parts of material covered were first prepared by JC Coetzee & HK Garg

? ...Let us start this part with some questions...



...Get the message?...!

Course Outlines

1. Complex Analysis

Complex functions, complex integral, analytic functions, Cauchy's theorem, power series, classifications of singularities, residues, argument principle

2. Optimization

Unconstrained optimization, constrained optimization, linear programming

Textbook

H K Garg, J C Coetzee and T M Ng, *Analytical Methods in Electrical and Computer Engineering*, Prentice Hall, Singapore, 2005

References

W. R. Derrick, *Complex Analysis and Applications*, 2nd Ed., Wadsworth International Group, California, 1984.

E. B. Saff and A. D. Snider, *Fundamentals of Complex Analysis*, 3rd Ed., Prentice Hall, 2003

B. M. Chen, *These Presentation Slides* (substantial materials are added to this part compared to the textbook by Garg et al.), 2007...

Lectures

Attendance is essential.

Ask any question at any time during the lecture.

Tutorials

There will be a total of 4 tutorials for this part.

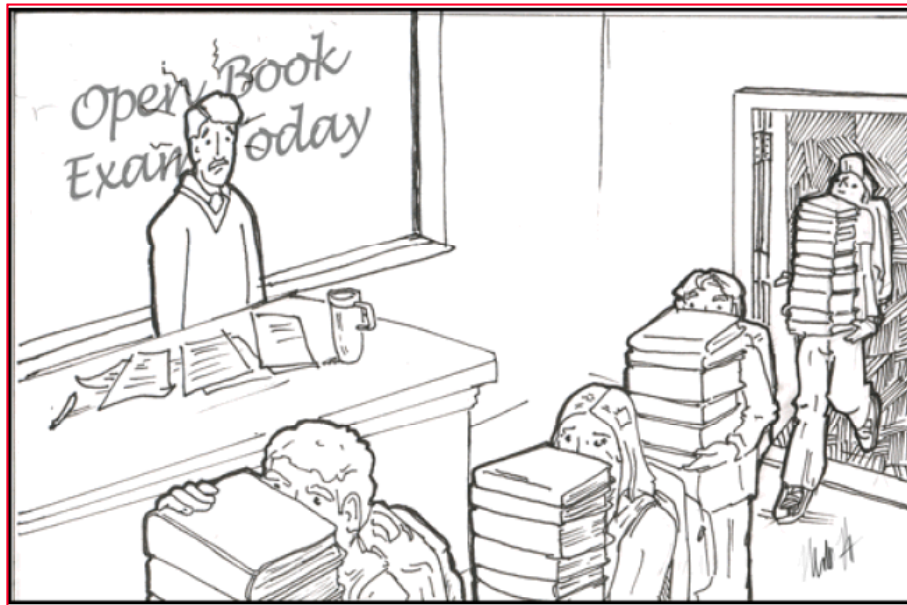
You should make an effort to attempt each question before the tutorial.

Some of the questions are straightforward, but quite a few are difficult and meant to serve as a platform for the introduction of new concepts.

Ask your tutor any question related to the tutorials and the course.

Test and Final Examination

There will be a test for Part 2 (20%) and it was one for Part 1 (20%). The schedule for the 2nd test is to be announced later. As usual, there will be a final examination (60%).



**Test 2 and
examination are
open book.**

Food for Thought

*There was once a man who was learning archery from a great master. One day, while practicing, the man's arrow hit the bull eye of the target. He was very excited and ran to tell the master. The master took a look at the arrow and asked him if he knew **how** he had hit the target. "I do not know," said the man. The master then told the man he have not mastered archery yet. The man was discouraged but still continued practicing everyday.*

*Many days later, the man was able to hit the target whenever he shot. He then asked the master to take a look. Again, the master asked the man if he knew **how** the arrow hit the target. The man said, "Yes, I do." "Good," said the master, "You know archery now, and you can go for Olympics gold medals 😊"*

It is not enough to hit the target. It is understanding how that is the all important.
