

PHYS 301 – SPRING 2015

COURSE PROGRAM

1ST Midterm Exam : Date and time will be decided in the class

2nd Midterm Exam : Date and time will be decided in the class

Marks distribution:

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|---|------------|
| 1) Two midterm exams each 20 marks----- | = 40 marks |
| 2) Class participation----- | = 10 marks |
| 3) Homework ----- | = 10 marks |
| 4) Final exam----- | = 40 marks |

Total-----= 100 marks

- Each absence above 8 will result to the deduction of 1 mark from Class participation.
- Notes of the course will be uploaded soon in my webpage:
<http://fac.ksu.edu.sa/vlempesis/home>

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Supplementary Literature:

1. Complex Variables, Introduction and Applications, M. J. Ablowitz and A. S. Fokas, 2nd Edition, 2003, Cambridge University Press.
2. Complex Variables and Applications, R. Churchill and J. Brown, 1996, McGraw-Hill.
3. Schaum's Outline of Complex Variables, 2ed (Schaum's Outline Series)

Syllabous

Polar Form of Complex Numbers, Triangle Inequality. Curves and Regions in complex Plane. Roots. Euler Formulae, Demoivre's Theorem. Limits. Derivatives. Analytic Functions. Cauchy-Riemann Equations. Laplace's Equation. Rational Functions. Exponential Functions. Trigonometric and Hyperbolic Functions. Logarithmic Function and General Power.

Line Integral in the Complex Plane. Basic Properties of the Complex Line Integral. Cauchy's Integral Theorem. Evaluation of Line Integrals by Indefinite Integration. Cauchy's Integral Formula. The Derivatives of an Analytic Function.

Function Represented by Power Series. Taylor Series and Taylor Series of Elementary Functions. Practical Methods for Obtaining Power Series. Uniform Convergence. Laurent Series. Analyticity at Infinity. Zeros and Singularities. The Residue Theorem. Evaluation of Real Integrals.