

Summarized Course Description

Course number: ECE 202	Course name: Engineering Mathematics
لغة تدريس المقرر : English	Pre-requisites: MATH221T
Credit hours: 3 (3+ 0+ 0)	Course level: Level 5 Year 3

Course Description

وصف المقرر :

Special functions. Bessel's functions and Legendre polynomials. Vector analysis including vector fields, divergence, curl, line and surface integrals, Green's, Gauss' and Stokes' theorems. Sturm-Liouville theory. Complex Numbers, Functions of a complex variable, differential complex calculus. Complex integration, Cauchy's theorem. Complex series, Taylor and Laurent series. Residue theorem. Introduction to partial differential equations and boundary value problems in rectangular, cylindrical and spherical coordinates.

Course objectives

أهداف المقرر :

To develop and enhance the student's ability to solve engineering problems using mathematical tools

Course Outcomes

مخرجات التعليم:

Upon completing the course, the student should be able to:

1. Apply knowledge of a vector field and its differentiation (divergence and curl) and boundary value problem as applied to electrical systems.
2. Explain and discuss the theorem of Green, Stokes, Divergence, Sturm-Liouville, Cauchy Integral and Residue.
3. Clarify complex calculus and partial differential equations and their applications in Electrical Engineering field
4. Interpret heat and wave equations appropriate for electrical engineering

Textbook and references

الكتاب المقرر والمراجع المساندة:

Book	Authors	Publisher	Publication year
Advanced Modern Engineering Mathematics	Glyn James	Prentice Hall	2011
Advanced Engineering Mathematics	Erwin Kreyszig	Wiley	2011
Engineering Mathematics with Examples and Applications	Xin-She Yang	Academic Press	2017