אוניברסיטת
בן-גוריון בנגב

The Department of Mathematics

2022–23–B term

Course Name Integral Calculus and Ordinary Dffierential Equations for EE

Course Number 212.1.9681

Course web page
`https://www.math.bgu.ac.il//en/teaching/spring2023/courses/integral-calculus-and-ordinary-differential-equations-for-ee`

Office Hours `https://www.math.bgu.ac.il/en/teaching/hours`

Abstract

Requirements and grading[1]

Course topics

.1 The Riemann integral: Riemann sums, the fundamental theorem of calculus and the indefinite integral. Methods for computing integrals: integration by parts, substitution, partial fractions. Improper integrals and application to series. .2 Unfiorm and pointwise convergence. Cauchy criterion and the Weierstrass M-test. Power series. Taylor series. .3 First order ODE's: initial value problem, local uniqueness and existence theorem. Explicit solutions: linear, separable and homogeneous equations, Bernoulli equations. .4 Systems of ODE's. Uniqueness and existence (without proof). Homogeneous systems of linear ODE's with constant coefficients. .5 Higher order ODE's: uniqueness and existence theorem (without proof), basic theory. The method of undetermined coefficients for inhomogeneous second order linear equations with constant coefficients. The harmonic oscillator and/or RLC circuits. If time permits: variation of parameters, Wronskian theory.

[1] Information may change during the first two weeks of the term. Please consult the webpage for updates