

# COE1212997 - CALCULUS II

2021 - 2022 SEMESTER

Instructor	E-mail	Time/Place
Prof. Dr. Hüseyin Merdan	merdan [at] etu.edu.tr	Monday: 08:40-10:30 / B106 Salı: 08:40-10:30 / B106 Perşembe: 08:40-10:30 / B106

## Course description:

Applications of the definite integral and improper integrals: area, volume, arc length and surface area, convergence of sequences and series, power series, Taylor polynomials, Taylor series, Maclaurin series, parametric equations, and polar coordinates. functions of several variables, limits and continuity, partial differentiation, chain rule, tangent plane, critical points, global and local extrema, directional derivatives, gradient, multiple integrals with applications, triple integrals with applications, triple integrals in cylindrical and spherical coordinates

Course web page: <http://merdan.etu.edu.tr/AnkMedCalculus2.htm>

## Text Books:

- Thomas' Calculus-Early Transcendentals (14th Ed.), Joel R. Hass, Maurice D. Weir, George B. Thomas; Pearson, 2019. ISBN: 978-0-13-443902-0
- CALCULUS--Early Transcendentals (6th Edition), James Stewart, Thomson-Brooks/Cole , ISBN 978 0-495-01166-8

## Aim of the Course:

- To gain basic mathematical knowledge.
- Developing mathematical thinking and modeling techniques.
- To give information about sequence, series, and limits, derivatives and integrals of functions of several variables.

## Grading:

- 4-Quizzes: %5 each
- Midterm: % 30
- Final Exam: % 50

Week	Syllabus
1	<b>Applications of Integrals</b> <ul style="list-style-type: none"> <li>• Area</li> <li>• Volume</li> </ul>
2	<ul style="list-style-type: none"> <li>• Arc length</li> <li>• Surface area</li> </ul>
3	<b>Parametric Curves and Polar Coordinates</b> <ul style="list-style-type: none"> <li>• Parametric equations and polar coordinates</li> </ul>
4	<b>Sequences and Series</b> <ul style="list-style-type: none"> <li>• Sequences</li> <li>• Series</li> </ul>
5	<ul style="list-style-type: none"> <li>• Convergence criterias: Integral, Comparison, Ratio and Root Tests</li> </ul>
6	<ul style="list-style-type: none"> <li>• Alterne series, absolute and conditional series</li> </ul>
7	<ul style="list-style-type: none"> <li>• Power series, Taylor and Maclaurin series, Taylor polynomial</li> </ul>
8	<b>Functions of Several Varibales</b> <ul style="list-style-type: none"> <li>• Limits and continuity</li> </ul>
9	<ul style="list-style-type: none"> <li>• Partial differentiation and chain rule</li> </ul>
10	<ul style="list-style-type: none"> <li>• Tangent plane, critical points, absolute and local extrema</li> </ul>
11	<ul style="list-style-type: none"> <li>• Directional derivatives and gradient</li> </ul>
12	<b>Multiple Integrals with Applications</b> <ul style="list-style-type: none"> <li>• Double integrals with applications,</li> </ul>
13	<ul style="list-style-type: none"> <li>• Triple integrals with applications</li> </ul>
14	<ul style="list-style-type: none"> <li>• Triple integrals in cylindrical and spherical coordinates</li> </ul>