

**Applied Mathematics 219**

**Multivariable Calculus for Engineers**

Techniques of integration, double and triple integrals, partial derivatives, applications.

Course Hours: H(3-1T-1.5)

Prerequisite(s): [Applied Mathematics 217](#); or [Mathematics 249](#) or [251](#) or [281](#) plus [Mathematics 117](#); or consent of Applied Mathematics Division.

Antirequisite(s): Credit for more than one of [Mathematics 253](#), 263, [283](#) or [Applied Mathematics 219](#) will not be allowed.

*Syllabus*

<u>Topics</u>	<u>Number of Hours</u>
Techniques of Integration (parts, partial fractions, inverse substitutions)	6
Improper Integrals	1
Numerical Integration (Trapezoidal and Simpson's Rules)	1
Double Integrals (including Polar Coordinates)	5
Centres of Mass with Double Integrals	3
Vector Basics, Determinants	3
Vector Derivatives	2
Triple Integrals (including Spherical Coordinates, Centres of Mass)	5
Parametric Curves	3
Partial Derivatives, the Chain Rule	6
Extreme Values	1
TOTAL:	<u>36</u>

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