

**MATH 22200 : Calculus for Technology
Course Syllabus**

General Information

- Text:** Peter Kuhfittig, Technical Calculus with
Analytic Geometry, 5th Edition
- Calculator** Calculator is not necessary and hence **not allowed**
for quizzes, tests and the Final Exam
- Prerequisites:** Math 22100 with a grade C- or higher

Additional information can be found on the Math Home Page

<http://www.math.iupui.edu>

This course has a DEPARTMENTAL FINAL EXAM

Course Objective

The objective of Math 22200 is to provide a solid, practical, working knowledge of calculus and its applications to various scientific and technical fields.

Course Outline:

1. Derivatives of the logarithmic function and the exponential functions
(as a REVIEW of Math 22100)
2. L'Hopital Rule and other Applications
3. Integration by Standard forms
 - a. The general power formula
 - b. The logarithmic form
 - c. The exponential form
 - d. Basic trigonometric forms
 - e. Other trigonometric forms
 - f. Inverse trigonometric forms
4. Methods of Integrations
 - a. Integration by parts
 - b. Integration by substitution
 - c. Integration by trigonometric substitution
 - d. Integration of rational functions
5. Expansion of functions in series
 - a. Infinite series, Maclaurin series
 - b. Certain operations with series

- c. Computations by use of series
- d. Taylor's series
- e. Fourier series
- 6. First-order differential equations
 - a. Solution of Differential equations
 - b. Separation of variables
 - c. The linear differential equations of the first order
 - d. Applications
- 7. Higher-order differential equations
 - a. Higher-order homogeneous equations
 - b. Second-order homogeneous equations
 - c. Repeated or complex roots
 - d. Nonhomogeneous equations
 - e. Applications
- 8. Laplace's method of solving differential equations