King Fahd University of Petroleum and Minerals
Department of Mathematical Science
**SYLLABUS**
Semester 043(Akram Ahmad.)
Office 5-320
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| **Course #:** | Math 102 |
| **Title:** | Calculus II |
| **Textbook:** | Calculus (Early Transcendentals) by H. Anton, I. Bivens, and S. Davis, seventh edition (2002) |
| **Objectives:** | Definite and indefinite integrals. Fundamental Theorem of Calculus. Techniques of Integration. Hyperbolic functions. Applications of integration. Improper integrals. Sequences and series: convergence tests. Alternating series. Absolute and conditional convergence. Power series. Taylor and Maclaurine series. |

| Week(s) | Dates | Sec. | Topics |
|---|---|---|---|
| 1 | July 2-6 | 6.1 | An Overview of the Area Problem |
| | | 6.2 | The Indefinite integral: Integral Curves |
| | | 6.3 | Integration by Substitution |
| | | 6.4 | Sigma Notation: Area as a Limit |
| 2 | July 9-13 | 6.5 | The Definite Integral |
| | | 6.6 | The Fundamental Theorem of Calculus |
| | | 6.7 | Average Value (pp. 434-435 only) |
| | | 6.8 | Evaluating Definite Integrals by Substitution |
| | | 6.9 | Logarithmic Functions from the integral Point of View |
| **Major Exam I : Saturday, 16-7-2005** | | | |
| 3 | July 16-20 | 7.1 | Area Between Two Curves |
| | | 7.2 | Volumes by Slicing: Disks and Washers |
| | | 7.3 | Volumes by Cylindrical Shells |
| | | 7.4 | Length of a Plane Curve |
| 4 | July 23-27 | 7.5 | Area of a Surface of Revolution |
| | | 7.8 | Hyperbolic Functions and Hanging Cables(pp. 509-513 only) |
| | | 8.2 | Integration by Parts |
| | | 8.3 | Trigonometric Integrals |
| **Major Exam II : Saturday, 30-7-2005** | | | |
| 5 | July 30- August 3 | 8.4 | Trigonometric Substitutions |
| | | 8.5 | Integrating Rational Functions by Partial Fractions |
| | | 8.6 | Special Substitutions (pp. 558-560 only) |
| | | 8.8 | Improper Integrals |
| 6 | August 6-10 | 10.1 | Maclaurine and Taylor Polynomial Approx. (till p. 644) |
| | | 10.2 | Sequences |
| | | 10.3 | Monotone Sequences |
| | | 10.4 | Infinite Series |
| **Major Exam III : Saturday, 13-8-2005** | | | |
| 7 | August 13-17 | 10.5 | Convergence Tests |
| | | 10.6 | The Comparison, Ratio and Root Tests |
| | | 10.7 | Alternating Series; Conditional Convergence |
| | | 10.8 | Maclaurine and Taylor Series; Power Series |
| 8 | August 20-22 | 10.9 | The Binomial Series & Table 10.9.1 (pp. 707-708 only) |
| | | 10.10 | Differentiating and Integrating Power Series |

- The date and place of the Final Examination will be announced by the Registrar. The Final Exam is Comprehensive.
- KFUPM policy with respect to attendance will be enforced.
- For details about Homework and Recitation Problems, see the following page.