King Saud university



Department of Mathematics

**Syllabus Math 106, First Semester 1437/1438 H**

**Course Code:** Math 106

**Course Title:** Integral Calculus

**Instructor and coordinator:**

Dr. Shalan Alkarni

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Blackboard: [www.lms.ksu.edu.sa](http://www.lms.ksu.edu.sa)

I will be posting grades, syllabus, and any useful materials related to this course on blackboard. Make sure that you familiarize yourself with it.

**Text Books:**

1. Calculus by Swokowski, Olinick and Pence, 6th Ed, PWS publishing Co.

( any book on Calculus from Library 515.1 5 )

**Additional Material:**

Lecture Notes on Integral Calculus by Dr. Muhammad Asif Qureshi

**Course Description:**

Definition of Definite Integral and its Properties, The Anti-derivative, Indefinite Integral and the Fundamental Theorem of Calculus. Change of Variables. Integrals of natural and general exponential functions. Integrals of natural and general Logarithmic functions. Derivatives and Integrals of Hyperbolic and Inverse-Hyperbolic functions. Techniques of Integration: by parts, Trigonometric substitutions, Completing the square, Integrals of rational functions, Miscellaneous Substitutions. Indeterminate forms, Improper Integrals. Applications of Integration: Area, Solids of Revolutions, Arc length and Surface of Revolution, Linear Motion, Work, Momentum and Center of Mass. Numerical Integration. Polar coordinates, relation between polar and Cartesian coordinates, Graphs of polar curves, Area in polar coordinates. Parametric Equations

**Midterm Examinations:**

**Midterm Exam I: Date: To be announced later**

**Midterm Exam II: Date: To be announced later**

**Exams and Marks:**

**Exam (1): Mid-Term (1) .................................................................. 25% Sections: ….**

**Exam (2): Mid-Term (2) ...................................................................25% Sections: …..**

**Final Exam .......................................................................................40% All sections**

**Tutorial .............................................................................................10%**

**Total ..................................................................................................100%**

**Notes:**

**1. Programmed calculator are not allowed.**

**2. Students who exceed the absence rate (25%) are not allowed to attend the final exam.**