Course Code & No	**Math 102**	**ريض ١٠٢**	**رقم المقرر ورمزه**
Course Name	**Calculus 2**	**تكامل**	**اسم المقرر**
Credit Hours	**3 (3 + 0 + 1)**	**٣ (٣ + ٠ + ١)**	**عدد الساعات المعتمدة**
Pre-requisite	**Math 101**	**ريض ١٠١**	**المتطلب السابق**

General Description	**توصيف عام**
Calculus II is the second in the three-semester sequence in the rigorous study of calculus. This course consists of working with logarithms and other exponential functions, hyperbolic functions, inverse and hyperbolic trigonometric functions, and numerous integration techniques including using tables, integration by parts, substitutions, partial fractions, and improper integrals.	الدوال الأسية واللوغارتمية، دوال المثلثات، طرق التكامل، التكامل الجزئي.

Course Objectives	**أهداف المقرر**
By the end of the course, students should be able to: • Perform integration using different techniques. • Use substitution to complete integrals. • Take derivatives and integrals of logarithm and exponential functions. • Take derivatives and integrals of inverse trigonometry and hyperbolic functions. • Integrate functions using tables. • Perform integration by parts. • Integrate powers of the trigonometric functions. • Use trigonometric substitutions, partial fractions, and other substitutions to integrate non-routine functions as needed. • Apply knowledge obtained to solve science/engineering problems.	

• Improve quantitative literacy, problem solving skills, and mathematical confidence. • Gain a firm understanding of the calculus idea the integral. • Demonstrate the ability to think critically and make reasonable judgments by acquiring, analyzing, combining, and evaluating quantitative and non-quantitative information. • Demonstrate the skills necessary to access and manipulate information through various technological and traditional methods. • Demonstrate the ability to use various differentiation and integration techniques with several types of functions. • Demonstrate the ability to manipulate the equations of conic and polar functions. • Know how to work with formulas for differentiation and integration in working with the inverse trigonometric functions and inverse hyperbolic functions. • Learn various techniques of integration including Calculus I techniques, tables, integration by parts, integration of powers of the trigonometric functions, integration using trigonometric substitutions, integration using partial fractions, and integration using miscellaneous substitutions.	

Course Outlines	**مفردات المقرر**
• Integration • Antiderivatives • Techniques of integration • Integration by Parts • Trigonometric Integrals • Trigonometric Substitution • Integration of Rational Functions by Partial Fractions • Rationalizing Substitutions	

• Applications of Integral Calculus • Area under a curve • Indefinite/definite integrals • Applications of integration • Double integrals over rectangles	

References	المراجع
• James Stewart. ***Calculus - Early Transcendental***, 5th edition, Brooks/Cole, 2003; ISBN: 0534393217.	