

الهندسة الكيميائية وتكرير النفط والغاز					البرنامج
الوحدات	الساعات المعتمدة				رمز الكورس
					عنوان الكورس
2	المجموع ٣	تمارين ١	عملي	نظري ٢	الرياضيات I
					الفصل الدراسي الأول
					Mathematic of secondary school
					المتطلبات الأساسية

Course Description

Introduction to functions, limits, Special functions, Derivatives, Chain rule, and their applications. Introduction to integral calculus, Methods of integration.

Course Text

1- Thomas Calculus, by George B.Thomas,Jr,Elevnth Edition Media Upgrade 2018"

Other support books:-

- 2- Engineering Mathematics for Semesters I and II, by C.B. Gupta, S.R. Singh, M. Kumar, 2015.
- 3- Advanced Engineering Mathematics, Fifth Edition, by C.Raywylie,LouisC.Barrett, 1982.
- 4- Mathematical Methods in chemical Engineering, Second Edition, by V.G.Jenson and G.V. Jeffreys, 1977.

Course Objectives : at the end of the semester the student should be able to :-

- 1-To develop an understanding with the concepts of calculus and analytic geometry and the applications of these concepts to the solution of engineering problems.
- 2-Provide practice at developing critical thinking skills, solving open ended problems and to work in teams.
- 3- Develop a deep understanding of issues related to the basic principles of calculus, and how to solve problems in chemical engineerin

Topics Covered (Syllabus)/ Mathematics I		
No	Contents	Hrs
١	Functions Absolute value - Coordinates of the plane- Slope of lines and angle of inclination- Functions and graph of the functions-Domain and range- Identifying functions, sum, differences, products and quotients- Composite functions- Shifting a graph of a function-Scaling and reflecting a graph of a function	9 hrs
2	Transcendental functions Logarithmic and exponential functions-Trigonometric functions-Inverse trigonometric functions.	6 hrs
3	Derivatives Definition-Chain rule- Derivative of inverse trigonometric functions- Derivative of exponential and logarithmic functions- L, hopitals rule-Partial derivative-Function of two or more variables	9 hrs
4	Determinates and Matrices Definition - Determinate evaluation -Solution of system of linear equation by matrix; (Inverse of matrix,Gauss elimination)- Rank of matrix -Eigen value and Eigen vectors.	6 hrs