Republic of Iraq

Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Apparatus

College: Shatt Al-Arab University
Department: Civil Engineering
Stage: 1st stage
Lecturer name: Shaheed Muhammed Ali
Academic title: Ass. Lecturer

Course Weekly Outline

Name	Shaheed Muhammed Ali					
E-mail address	Shaheed.mohammedali@sa-uc.edu.iq					
Course name	Mathematics-2					
Course objective	1. Good understanding of General Mathematics. 2. To give information about Integrations and derivations and how they are used in the engineering field. 3. Helping students to connect mathematics with civil engineering. 4. better understanding of integration and derivations and their importance of role in civil engineering					
Course description	Full course of teaching differentiations and integrations and their engineering applications.					
References	Calculus, International Edition, By Thomas, 2005.					
External sources	Calculus with Analytical Geometry, Fourth Edition, By Robert Ellis and Denny Gulick, 1990					
Course assessment	**Home work**	**Quizzes**	**Project**	**Report**	**Mid-term exam**	**Final exam**
	10	**10**	**10**	**10**	**10**	**50**
General notes						

Republic of Iraq

Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Apparatus

College: Shatt Al-Arab University
Department: Civil Engineering
Stage: 1st stage
Lecturer name: Shaheed Muhammed Ali
Academic title: Ass. Lecturer

Course Weekly Outline

Week No.	Theoretical	Aims
1	Complex Number: Invented number systems, The Argand diagram.	Highlighting the importance of differentiation and integration for the branches of science and engineering, and the student's awareness of the relationship between them. Presentation of the basic rules of differentiation and integration and their applications. Accustoming the student to sound logical thinking and acquiring the skills necessary to solve problems
2	Complex Number: Addition, Subtraction, product, Quotient, Power and Roots, Demoivers theorem.	
3	Hyperbolic Functions: Definition, Derivatives	
4	Hyperbolic Functions: Integrals, Inverse Hyperbolic Functions.	
5	Plane Analytic Geometry: Circle, Parabola	
6	Plane Analytic Geometry: Ellipse, Hyperbola	
7	Volume of Revolution: Disk Method	
8	Volume of Revolution: Washer Method	
9	Volume of Revolution: Volumes by Cylindrical Shells & solid with known cross sections	
10	Methods of Integrations: Integration by substitution	
11	Methods of Integrations: Trigonometric Integrals & Quadratic Functions	
12	Methods of Integrations: Integration by Parts, Integration by partial fractions	
13	Methods of Integrations: Integration of Rational Functions, improper integrals.	
14	Matrices and Determinates: Definition, Properties of Matrices, Operations on Matrices	
15	Determinants, Matrix Inverse, Solution of Linear Simultaneous Equations (Gramer's Rule).	