

Number of units 6	T 3	P -	Th 3	Number of weekly hourS	Annual System 30 weeks	Al-Esra'a University College Department: Engineering of Refrigeration and Air Conditioning Technologies
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				Subject Topics: Mathematics (2)	Second stage
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Course Objective

Teaching the student on the second part of advanced mathematics to develop his intellectual ability to be utilized in the engineering applications.

Week	Topics	Practical subject	Notes
1	Review in integrals and derivatives		
2-3	Vectors: equation of line & plane in space, plane , tangent & vertical line , vector function		
4-5	Complex number, polar form , Euler Equation , Exponential & roots of complex number		
6 - 9	Function with two or more variables- Partial differentiation - Partial differentiation chain rule -Victor and valued differentiation - Maximum and minimum values for two variable functions.		
10 - 13	Double integration - Areas and volumes -Physical applications- Triple integrals.		
14 - 15	Polar coordinates - Cylindrical and spherical coordinates - Curves sketching in polar coordinates.		
Half-year Break			
16-17	Polar coordinates - Cylindrical and spherical coordinates - Curves sketching in polar coordinates		
18 - 19	Green's theory -Divergence theory.		
20	Linear integration		
21 - 24	Series: Number sequences — Definition-Limits —Infinite series - Limits definition - Alternating series tests. Power series - Convergence period - Taylor and Macbrain function series - General applications.		
25 - 28	Matrix: matrix operations -Matrix inversion - Linear systems equations) - Solving linear systems by matrix methods – Internal values and vectors.		
29-30	First order differential equations and simple higher order differential equations.		