

## Course Description

This course description provides a necessary summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve Proof of whether he has made the most of the learning opportunities available. It must be linked to a description Program. ;

1. Educational Institution	Shatt Al Arab University College
2. Scientific Department / Center	Computer Technology Engineering
3. Course name/code	Mathematics 2.
4. Available forms of attendance	Weekly (theoretical)
5. Semester / Year	2022/2023
6. Number of study hours (total)	90
7. Date of preparation of this description	10/3/2022
2. Course Objectives	
1. Helping the student to understand the laws and mathematical problems necessary for the purpose of solving electrical circuits	
2. Raising the level of the student in mathematics	
3. Develop sound thinking methods and release the potential of the student and apply them in the engineering field	
3. Course Outcomes and Teaching Methods, Learning and Assessment	
A. Cognitive Objectives	
A1 - The student should mention, for example, the text of the Crane theorem - the definition of the vector ..... )	
A2 - The student should distinguish between point multiplication and directional multiplication	
A3 - The student should use more than one method to solve differential equations	
A4 - The student should recognize the types of coordinates	
A5 - The student understands how to find frequent integration	
A6 - The student should judge the validity of the conclusions he reaches	
(b) The skills objectives of the course.	
B1 – Solving some mathematical problems and solving a typical question that require multiple skills	
B2 – Accuracy, clarity, and achievement in expression	
B3 – Developing abilities for sequential logical thinking	
B4 - Formulation of a life problem Mathematical formulation and the use of mathematical methods in solving it	
Teaching and learning methods	
Lectures—Explanations (Data show)	
Evaluation Methods	
Written Quarterly Exams	
Weekly/Oral + Written Tests	
Quick questions	
Pre- and post-questions	
C. Emotional and Value Objectives	
C1 - The student should listen attentively to the explanation of the professor	
C2 - The student should pay attention to the calmness and regularity of the class	

C3 - The student should recognize the impact of science and scientists in life					
C4 - The student should describe the importance of learning mathematics, for example					
Teaching and learning methods					
Discussion and dialogue with students					
Evaluation Methods					
Questionnaire, Seminars, Discussion Themes					
D. General and qualifying skills transferred (other skills related to employability and personal development).					
D1 - The graduate acquires the basic skills of mathematics in terms of language, symbols, information, and methods					
Thinking					
D2 - Develop mental skills that enable the graduate to benefit from the information he learns and the skills he learns					
Acquire it and employ it in serving his requirements as an individual and in serving the goals of society in terms of social development					
Economic					
D3 - Acquire some practical skills such as the use of engineering tools and measurement skills and the operation of some hardware and the machines					
D4 - Developing sound thinking methods and releasing potential					
10. Course Structure					
Evaluation Method	Method of education	Unit Name / or Subject	Output Learning required	Hours	Weeks
- Weekly exams	theoretical lecture	Vector analysis	The student understands the lesson	3	1
It's the previous one, and so on.	theoretical lecture	Vector field	The student understands the lesson	3	2
- Weekly exams	theoretical lecture	Linear algebra	The student understands the lesson	3	3
It's the previous one, and so on.	theoretical lecture	Vector calculations	The student understands the lesson	3	4
- Weekly exams	theoretical lecture	Scalars and vector unit	The student understands the lesson	3	5
It's the previous one, and so on.	theoretical lecture	Orthogonal vector	The student understands the lesson	3	6
- Weekly exams	theoretical lecture	Dot product	The student understands the lesson	3	7

It's the previous one, and so on.	theoretical lecture	cross product	The student understands the lesson	3	8
- Weekly exams	theoretical lecture	Theory for vector field	The student understands the lesson	3	9
It's the previous one, and so on.	theoretical lecture	Vector variable function	The student understands the lesson	3	10
- Weekly exams	theoretical lecture	Polar coordinates – gradient in polar	The student understands the lesson	3	11
It's the previous one, and so on.	theoretical lecture	Spherical coordinates	The student understands the lesson	3	12
- Weekly exams	theoretical lecture	Complex number	The student understands the lesson	3	13
It's the previous one, and so on.	theoretical lecture	Polar form of complex number	The student understands the lesson	3	14
- Weekly exams	theoretical lecture	Algebra for complex number	The student understands the lesson	3	15
It's the previous one, and so on.	theoretical lecture	Algebra for Spherical coordinates	The student understands the lesson	3	16
- Weekly exams	theoretical lecture	Infinite series	The student understands the lesson	3	17
It's the previous one, and so on.	theoretical lecture	Power series	The student understands the lesson	3	18
- Weekly exams	theoretical lecture	Convergence and divergence series	The student understands the lesson	3	19
It's the previous one, and so on.	theoretical lecture	Number and Complex series	The student understands the lesson	3	20

- Weekly exams	theoretical lecture	Complex variable	The student understands the lesson	3	21
It's the previous one, and so on.	theoretical lecture	Cauchy Riemann equations	The student understands the lesson	3	22
- Weekly exams	theoretical lecture	Differential equation	The student understands the lesson	3	23
It's the previous one, and so on.	theoretical lecture	Differential equation of the first order	The student understands the lesson	3	24
- Weekly exams	theoretical lecture	Differential equation of n order	The student understands the lesson	3	25
It's the previous one, and so on.	theoretical lecture	Application	The student understands the lesson	3	26
- Weekly exams	theoretical lecture	Multiple integrations	The student understands the lesson	3	27
It's the previous one, and so on.	theoretical lecture	Surface area	The student understands the lesson	3	28
- Weekly exams	theoretical lecture	Green theorem	The student understands the lesson	3	29
It's the previous one, and so on.	theoretical lecture	Stokes theorem	The student understands the lesson	3	30

#### 11. Infrastructure

Calculus II	1. Required textbooks
Books – Internet	2. Main references (sources)
Calculus Thomas -13th edition Schaum,s mathematic book Practice problem calculus II Topic s in a calculus II-wolfram mathworld	A Recommended Books and References (Scientific Journals , Reports ,.... )
	B References, Websites
	12. Course Development Plan
1. Add LASS transfers to benefit from it in engineering lessons	
2. Use of programming language in applied mathematics	