

<b>Department</b>	General Studies	<b>Major</b>						
<b>Course Name</b>	Mathematics	<b>Course Code</b>	MATH 121					
<b>Prerequisites</b>	-	<b>Credit Hours CRH</b>	3		CTH		4	
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### Course Description :

Mathematics represents a basic document and an introduction to the trainee in diplomas of electronic technology, electrical technology, mechanical technology and communication technology to some basic skills corresponding to the twenty-first century skills, and it covers a number of the basic mathematical topics including polynomials, matrices, determinants, equations, differentiation and integration.

### General Objective:

Provide the trainee with the knowledge and mental skills such as logical thinking skills , problem solving ,decision making, and enabling him to use the computer and mathematical softwares to address the mathematical models in order to qualify trainees to understand the specialized courses according to quality standards and to serve the market requirements.

### Detailed Objectives:

#### Trainee will be able to:

- 1- To perform calculations on polynomials.
- 2- To perform calculations on matrices.
- 3- To calculate determinants.
- 4- To solve equations.
- 5- To calculate limits.
- 6- To calculate continuous function.
- 7- To solve problems with differentiation.
- 8- To employ integration calculation methods in mathematical applications.

### Safety Procedures:

- 1- Maintaining public safety in the surrounding environment.
- 2- Complying with emergency guidelines.
- 3- Preserving the Corporation's properties of tools and equipment.
- 4- Leaving the classroom clean and tidy.
- 5- Reporting any faults.

Detailed of Theoretical Contents			
Hours	Contents		Assessment Tools
10	<b>U1: Polynomials:</b> <ul style="list-style-type: none"> <li>Polynomials definition.</li> <li>Operations on Polynomials.</li> <li>Polynomials analysis.</li> <li>Simplifying of algebraic fractions.</li> </ul>		Periodic tests Homework Organized observation Projects
	Textbook	1	Mathematics for Scientific and Technical Students, by H.G. Davies (Author), G.A. Hicks (Author)
		2	PRECALCULUS MATHEMATICS FOR CALCULUS -6 Edition JAMES STEWART, LOTHAR REDLIN and SALEEM WATSON , 2006
		3	basic mathematics for college students by alan s. tussy
10	<b>U2: Matrices and determinates:</b>  Matrices: <ul style="list-style-type: none"> <li>Matrices definition.</li> <li>Operations on matrices.</li> <li>Special matrices.</li> </ul> Determinates: <ul style="list-style-type: none"> <li>Determinates definition.</li> <li>Determinant of a matrix 2x2.</li> <li>Determinant of a matrix 3x3.</li> <li>Calculation of inverse matrix.</li> </ul>		Periodic tests Discussion Homework Individual and group projects
	Textbook	1	Matrix Theory with Applications, by GOLDBERG (Author)
		2	Schaum's Theory & Problems of Matrices, by Frank Ayres Jr.
	8	<b>Un3: Equations:</b> <ul style="list-style-type: none"> <li>Solving first degree equations.</li> <li>Solving second degree equations.</li> <li>Linear equations.</li> </ul>	
Textbook		1	PRECALCULUS MATHEMATICS FOR CALCULUS -6 Edition JAMES STEWART, LOTHAR REDLIN and SALEEM WATSON , 2006
		2	basic mathematics for college students by alan s. tussy

Detailed of Theoretical Contents			
Hours	Contents		Assessment Tools
10	<b>Un4: limits and continuity:</b>  Limits: <ul style="list-style-type: none"> <li>• Limits definition.</li> <li>• Calculating left and right hand limits.</li> <li>• Set of discontinuities and how to remove them.</li> </ul> Continuity: <ul style="list-style-type: none"> <li>• Continuity at a point.</li> <li>• Properties of continuous function.</li> <li>• Properties of continuous functions on a closed period</li> </ul>		Periodic tests Discussion Simulation Homework Individual and group projects
	Textbook	1	Introduction to Analysis (3rd Edition), William R. Wade
		2	حساب التفاضل والتكامل والهندسة التحليلية، وليم ه دورفي
14	<b>U5: Differentiation:</b>  Derivation: <ul style="list-style-type: none"> <li>• Physical interpretation of derivative.</li> <li>• Derivation definition.</li> <li>• Basic derivative rules.</li> <li>• Common derivative function rules.</li> <li>• Embedded derivation.</li> <li>• Higher order derivatives.</li> </ul> Differentiation: <ul style="list-style-type: none"> <li>• Differentiation.</li> <li>• Differentiation application.</li> </ul>		Periodic tests Discussion Simulation Homework Individual and group projects
	Textbook	1	Calculus, Early Transcendentals Seventh Edition, J.Stewart
		2	Introduction to Analysis (3rd Edition), William R. Wade
		3	حساب التفاضل والتكامل والهندسة التحليلية، وليم ه دورفي
12	<b>U6: Integration:</b>  <ul style="list-style-type: none"> <li>• Native functions and integration.</li> <li>• Limitless integration.</li> <li>• Common integral functions.</li> <li>• Limited integration.</li> </ul>		Periodic tests Simulation Discussion Homework Individual and group projects
	Textbook	1	Calculus, Early Transcendentals Seventh Edition, J.Stewart
		2	حساب التفاضل والتكامل والهندسة التحليلية، وليم ه دورفي

<b>Textbooks</b>	● Mathematics for Scientific and Technical Students, by H.G. Davies (Author), G.A. Hicks (Author)	
	● PRECALCULUS MATHEMATICS FOR CALCULUS -6 Edition JAMES STEWART, LOTHAR REDLIN and SALEEM WATSON , 2006	
	● basic mathematics for college students by alan s. tussy	
	● Matrix Theory with Applications, by GOLDBERG (Author)	
	● Schaum's Theory & Problems of Matrices, by Frank Ayres Jr.	
	● Introduction to Analysis (3rd Edition), William R. Wade	
	● Calculus, Early Transcendentals Seventh Edition, J. Stewart	
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