# Lectures of the Department of Civil Engineering

Subject Title:- **Mathematics**
Class:- First Class

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| Lecture Contents | Lecture sequences | First lecture | Instructor Name:mohammed |
| | The major contents :<br>1- matrices, matrices and determinants and their applications / eigenvalues and vectors of self- | | |
| | The detailed contents:<br>1- matrices, matrices and determinants and their applications / eigenvalues and vectors of self-<br>2- a review of calculus, coordinates, draw level, slope and straight line equations, functions and drawn, circles, parabolas, Altazhev, review the trigonometric functions, absolute value. | | |

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| Lecture Contents | Lecture sequences | Second lecture | Instructor Name:mohammed |
| | The major contents :<br>1- matrices, matrices and determinants and their applications / eigenvalues and vectors of self- | | |
| | The detailed contents:<br>1- matrices, matrices and determinants and their applications / eigenvalues and vectors of self-<br>2- a review of calculus, coordinates, draw level, slope and straight line equations, functions and drawn, circles, parabolas, Altazhev, review the trigonometric functions, absolute value. | | |

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| Lecture Contents | Lecture sequences | Third lecture | Instructor Name:mohammed |
| | The major contents :<br>1- goals, goals that have indefinitely | | |
| | The detailed contents:<br>1 goals, goals that have indefinitely<br>2- derivatives, tilt, tangent line, the laws of derivation, speed and rates of change, derivatives of trigonometric functions, chain rule, implicit derivation, Wallace fractional, linear approximation and differentiation. | | |

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| Lecture Contents | Lecture sequences | Fourth lecture | Instructor Name:mohammed |
| | The major contents :<br>1- applications of the derivative | | |
| | The detailed contents:<br>1 • applications of the derivative, rates of change, endings, large and small, the theory of the average value, draw a curved Palmstqh the first and second drawing functions fractional ideal, unlike derivatives, the initial value problems,<br>2- integration, differentiation, integration, space, definite integral, fundamental theorem of integral calculus, non-specific integration, integration by substitution, numerical integration, introduction to exponential and logarithmic function | | |

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| Lecture Contents | Lecture sequences | Fifth lecture | Instructor Name:mohammed |
| | The major contents :<br>1- applications of the derivative | | |
| | The detailed contents:<br>1 • applications of the derivative, rates of change, endings, large and small, the theory of the average value, draw a curved Palmstqh the first and second drawing functions fractional ideal, unlike derivatives, the initial value problems,<br>2- integration, differentiation, integration, space, definite integral, fundamental theorem of integral calculus, non-specific integration, integration by substitution, numerical integration, introduction to exponential and logarithmic function | | |

<table>
<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>Seventh lecture</td><td>Instructor Name:mohammed</td></tr>
<tr><td colspan="3">The major contents :<br>1- Applications of definite integral</td></tr>
<tr><td colspan="3">The detailed contents:<br>1 - Applications of definite integral, area between curves, volumes of objects rotating, disk and Allowacher, cylindrical volumes, the length of the curve in the plane, the surface area of revolution<br>2- integration, differentiation, integration, space, definite integral, fundamental theorem of integral calculus, non-specific integration, integration by substitution, numerical integration, introduction to exponential and logarithmic function</td></tr>
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| Lecture Contents | Lecture sequences | eighth lecture | Instructor Name:mohammed |
| | The major contents :<br>1- Applications of definite integral | | |
| | The detailed contents:<br>1 - Applications of definite integral, area between curves, volumes of objects rotating, disk and Allowacher, cylindrical volumes, the length of the curve in the plane, the surface area of revolution<br>2- integration, differentiation, integration, space, definite integral, fundamental theorem of integral calculus, non-specific integration, integration by substitution, numerical integration, introduction to exponential and logarithmic function | | |

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| Lecture Contents | Lecture sequences | ninth lecture | Instructor Name:mohammed |
| | The major contents :<br>1- Applications of definite integral | | |
| | The detailed contents:<br>1 - Applications of definite integral, area between curves, volumes of objects rotating, disk and Allowacher, cylindrical volumes, the length of the curve in the plane, the surface area of revolution<br>2- integration, differentiation, integration, space, definite integral, fundamental theorem of integral calculus, non-specific integration, integration by substitution, numerical integration, introduction to exponential and logarithmic function | | |

<table>
<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>tenth lecture</td><td>Instructor Name:mohammed</td></tr>
<tr><td colspan="3">The major contents :<br>1- vague functions (transcendental), inverse functions and their derivatives,</td></tr>
<tr><td colspan="3">The detailed contents:<br>1 - vague functions (transcendental), inverse functions and their derivatives, logarithmic function, exponential function, the derivation logarithmic, inverse trigonometric functions and their derivatives and integrals related<br><br>2- methods of integration, the basic laws of integration, retail integration, integration of trigonometric functions and relative and fractional</td></tr>
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