

Date:30/01/2022	Examination No.:	Version:01/09/2021	Start: 30/01/2022
Module Name - Code	Mathematics I- 1102		
Module Language:	English		
Responsible:	Barzan OMAR		
Lecture (s):	Mr. Barzan OMAR/ MSc		
College:	College of Engineering – Salahaddin University		
Duration:	6 week – Spring Semester		
Course outcomes:	<p>At the end of the semester, students would be able to</p> <ol style="list-style-type: none"> 1. Find the anti-derivative of elementary polynomials, exponential, logarithmic and trigonometric functions. 2. Interpret the definite integral geometrically as the area under a curve. 3. Construct a definite integral as the limit of a Riemann sum. 4. Approximate a definite integral using left sum, right sum, midpoint and trapezoidal rules. 5. Interpret the indefinite integral as a definite integral with variable limit(s). 6. Interpret differentiation and anti-differentiation as inverse operations. 7. Interpret the anti-derivative as a definite integral with variable limit and implement this expression on graphing platforms. 8. Evaluate a definite integral using an anti-derivative. 9. Use substitution to find the anti-derivative of a composite function. 10. Interpret a function from an algebraic, numerical, graphical and verbal perspective and extract information relevant to the phenomenon modeled by the function. 11. Ability to evaluate the integrals of complex functions. 12. Ability to find the integral value of complex function by approximate method. 13. Ability to evaluate the integral of function with infinite domain and find the values of integrals. 14. Interpret a new coordinate system to represent the data, Polar coordinate. 15. Ability to express function in both coordinates Cartesian and Polar Coordinates. 16. Ability to find the area under the curves in polar coordinates. 17. Interpret the 3-D dimensions and related to the given coordinates. 18. Interpret points, lines, and planes in space. 19. Interpret somethings that must express with both direction and magnitude like Force, Velocity, etc. 		
Course Content:	Integral, Transcendental Functions, Application of Definite Integrals, Techniques of Integration		
Literature:	<ol style="list-style-type: none"> 1- George B. Thomas, Jr, Maurice D. Weir, Joel Hass, Christopher Heil <<THOMAS' CALCULUS 13/E>> Pub, Pearson, 2010. 2- George B. Thomas, Jr, Maurice D. Weir, Joel Hass, Frank R. Giordano <<THOMAS' CALCULUS 11/E>> Pub, Pearson, 2005. 3- Salas Hile <<CALCULUS ONE VARIABLE 9th edition>> pub, John Wiley and sons, 2003. 4- Howard Anton <<CALCULUS WITH ANALYTIC GEOMETRY; 3ed edition>> pub, John Wiley, 1983. 5- James Swart <<CALCULUS 5th edition>> pub, Thomson, 2003. 6- R. Finney and G. Thomas <<CALCULUS AND ANALYTIC GEOMETRY 10th edition>> pub, Addison Wesley, 2003. 		
Type of Teaching:	3 hrs. theory per week 1 hr. tutorial per week		
Pre-requisites:	A Strong background in mathematics and required to study about ten to fifteen hours a week outside the class.		

Frequency:	Yearly in fall semester								
Requirements for credit points:	For the award of credit points, it is necessary to pass the final module exam if: 1. The minimum annual effort is 15 %. 2. Student's attendance is required in all classes.								
Credit point:	5								
Grade Distribution:	<p>For the award of credit points, it is necessary to pass the module exam. The module exam contains: A mid-term exam, class room activities, quizzes, home works and final exam on June. So, the final grade will be based upon the following criteria:</p> <table border="1" data-bbox="1014 432 1406 695"> <tr> <td>Semester exam</td> <td>30%</td> </tr> <tr> <td>Activities and Quizzes</td> <td>10%</td> </tr> <tr> <td>Final exam</td> <td>60%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	Semester exam	30%	Activities and Quizzes	10%	Final exam	60%	Total	100%
Semester exam	30%								
Activities and Quizzes	10%								
Final exam	60%								
Total	100%								
Work load:	The workload is 120h. It is the result of 60h attendance and 60h self-studies.								