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| Date: | Examination No.: 15367 | Version:1/9/2019 | Start: 1/9/2019 |
| **Module Name - Code** | Mathematics II – 5112 | | |
| **Module Language:** | English | | |
| **Responsible:** | A.L. Nawroz Ibrahim | | |
| **Lecture (s):** | Lecture (3 hours / week)  Tutorial (1 hour / week) | | |
| **College:** | College of Engineering – Salahaddin University | | |
| **Duration:** | 15 week – 1 semester | | |
| **Course outcomes:** | * At the end of the semester, students would be able to Understand how engineers solve problems step by step and properly. * Be aware of the week points and the errors that they expect during the mathematical solutions before starting their program. * Be familiar with the major rules, geometries, equations, functions, & graphs. * How to differentiate a function of one or more variables using, for example, the chain rule, the product rule, and change of variables; * finding maxima and minima of functions of one or more variables either with or without constraints; * integration by parts; * Understand the role of mathematics and how the development of technology has been related to the development of mathematics. | | |
| **Course Content:** | Integrals Involving Inverse Trigonometric Functions, Integration Methods Integration by Parts, The Substitution t = tan(x), The Substitution , Integration Applications (Volumes of Revolutions) The Disk Method, Revolution About a Line That is Not a Coordinate Axis, The Shell Method, Techniques of Integration: Partial fractions Decomposition, Definitions of Hyperbolic Functions, Graphs of Hyperbolic Functions, Differentiation of Hyperbolic Functions, Integration of Hyperbolic Functions, Inverse Hyperbolic Functions. | | |
| **Literature:** | 1. Thomas Calculus 11­th edition 2005 2. Thomas Calculus by "George Thomas" 12­th edition 2010 3. Schism’s outlines Matrix Operations 2nd edition 1989 4. Discrete mathematics "P.K. Mittal" 1­st edition 2004 | | |
| **Type of Teaching:** | 3 hrs. in lectures  1 hr. exercises & Tutorial. | | |
| **Pre-requisites:** | 5110 | | |
| **Frequency:** | Yearly in fall semester | | |
| **Requirements for credit points:** | For the award of credit points it is necessary to pass the module exam.  The module exam contains:  Oral/Written (written if 6 students or more) [Oral minimum 30 min / Written 120 min]  **Student's attendance is required in all classes**. | | |
| **Credit point:** | 6 | | |
| **Grade Distribution:** | The Grade is generated from the examination result(s) with the following  weights (w):  Oral/Written [w: 1] | | |
| **Work load:** | The workload is 120h. It is the result of 60h attendance and 60h self-studies. | | |