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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.
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| **Course Content:** | Integrals Involving Inverse Trigonometric Functions, Integration Methods Integration by Parts, The Substitution t = tan(x), The Substitution $t=\tan(\frac{x}{2})$ , 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
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| **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 followingweights (w):Oral/Written [w: 1] |
| **Work load:** | The workload is 120h. It is the result of 60h attendance and 60h self-studies. |