

## 319 MATH Course Syllabus

<b>Course Code</b>	319 MATH
<b>Course Name</b>	Differential Equations
<b>Credit Hours</b>	3
<b>Contact Hours</b>	3
<b>Instructor Name</b>	Dr. Mohamed Abd El-Aziz

### **Text Book** (title, author, and year)

- Dennis G. Zill, A first course in differential equations, 5th edition

### **Specific Course Information**

<b>Catalog Description</b>	The course gives some methods to solve differential equations of the first and second order and using it in engineering applications.
<b>Prerequisites</b>	113 MATH Differentiation & Integration
<b>Co-requisites</b>	NIL
<b>Required/Elective</b>	required

### **Course Learning Outcomes**

See the Mapping in First Page of College Courses

### **List of Theory Topics**

- Elimination of constants, First order differential equations (Separable variables, Homogeneous, Exact, Integrating factor, Linear, Bernoulli and Recatti,)
- Second order differential equations (Independence and linear dependence of functions Wronskian) Higher order differential equations with constant coefficients, Non-homogeneous differential equations, reduction of order, Undetermined coefficient method.
- Differential operator method and its properties
- Variation of parameters method
- Applications of differential equations
- Power series solution about ordinary and singular points