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| SEMESTER <i>First</i> | DEPARTMENT <i>General Engineering</i> | COURSE TITLE <i>Mathematics I</i> |
| COURSE CODE <i>EG101</i> | HOURS: 3 UNITS: 3 | COURSE SPECIFICATIONS <i>Theoretical Contents</i> |

1. Sets and Subsets:

- Basic sets operations (union, intersection, difference, complete).
- Real line.
- Order.
- Intervals.
- Inequalities.
- Absolute values.

2. Functions:

- Relations and definitions of function.
- Domain and range of function.
- Types of functions.
- Algebraic functions.
- Exponential and logarithmic functions.
- Trigonometric functions.
- Inverse of trigonometric functions.
- Graphs of functions.

3. Limits:

- Definition of limits.
- Limits laws.
- One- sided limits.
- Limit of algebraic and trigonometric function.

4. Continuity:

- Definition of continuity.
- Conditions of continuity at point.

5. Differentiation:

- Definition.
- Differentiation of algebraic functions.
- Differentiation of trigonometric functions.
- Inverse of trigonometric, exponential, and logarithmic function.
- Differentiation of parametric and hyperbola functions.
- Chain rule.
- Higher order of derivatives.

References:

حساب التفاضل والتكامل والهندسة التحليلية , - - , 1974 .