



## Course Weekly Outline

| Week | Date | Topics Covered  | Lab. Experiment Assignments | Notes |
|------|------|---|-----------------------------|-------|
| 1    |      | <b>1- Mathematical Induction</b>  |                             |       |
| 2    |      | <b>1- Mathematical Induction</b>  |                             |       |
| 3    |      | <b>2- Mathematical Logic</b><br>1- Introduction<br>2- Simple Logic Statements   |                             |       |
| 4    |      | <b>3- Variable Use In Proposition Statements</b><br><b>4- Compound Logic Statements</b>                                     |                             |       |
| 5    |      | <b>5-Logical Propositions</b><br><b>6-Logical Equivalence</b><br><b>7-Tautology Statement &amp; Contradiction Statement</b> |                             |       |
| 6    |      | <b>8-Logical Implication</b><br><b>9-Algebra Of Propositions</b>  |                             |       |
| 7    |      | <b>10- Conditional Statements &amp; Variations</b><br><b>11- Quantifiers</b><br><b>12- Logical Reasoning</b>                |                             |       |
| 8    |      | <b>3- Sets Theory</b><br>1- Introduction<br>2- Methods of Expressing Sets<br>3- Principle Concepts of Sets                  |                             |       |
| 9    |      | <b>4- Venn Diagrams</b><br><b>5- Sets of Numbers</b><br><b>6- Algebra of Sets</b>   |                             |       |
| 10   |      | <b>7- Family of Sets &amp; index Family of Sets</b><br><b>8- Ordered Pairs &amp; Product Sets</b>                           |                             |       |

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|------------------------|--|--|--|--|
| 11                     |  | <b>9- Boolean Algebra</b>  |  |  |
| 12                     |  | <b>4- Relations</b><br>1- Introduction<br>2- Binary Relation<br>3- Graph of the Relation<br>4- Photographer representation of the relations  |  |  |
| 13                     |  | <b>5- The Domain &amp; the Range of a Relation</b><br><b>6- Identity Relation &amp; Inverse Relation</b><br><b>7- Composition Relation</b> <b>8- Type of Relation</b><br><b>9- Equivalence Relations</b> |  |  |
| 14                     |  | <b>5- Functions</b><br>1- Introduction<br>2- Principle Concepts & Definition   |  |  |
| 15                     |  | <b>3- Models of Functions</b><br><b>4-Composition Function</b><br><b>5- Algebra of Function</b>  |  |  |
| 16                     |  | <b>6-Discussion Functions through the planned equity</b><br><b>7-Draw Graphs Functions</b>   |  |  |
| <b>Half-year Break</b> |  |  |  |  |
| 17                     |  | <b>6- Vectors and Matrices</b><br>1- Introduction<br>2- Vectors<br>3- Matrices<br>4- Models of Square Matrices   |  |  |
| 18                     |  | <b>5- Algebra in the Matrices</b><br><b>6-Determinants</b>   |  |  |
| 19                     |  | <b>7- Minors &amp; Cofactors</b><br><b>8- Find Inverse Square Not Singular Matrix</b><br><b>9- Solving System of liner equations using the</b>   |  |  |
| 20                     |  | <b>Non_homogeneous Matrix inverse</b><br><b>10- Grammar Rule</b>   |  |  |

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| 21 |  | <b>7- Graph Theory</b><br>1- Introduction<br>2- Principle Concepts<br>3- Type of Graphs  |  |  |
| 22 |  | 4- Definitions<br>5- Examples of Graphs<br>6- Graphs & Relation  |  |  |
|    |  |  |  |  |
| 23 |  | 7- Graphs & Matrices<br>8- Pruning Algorithm for Minimal Path  |  |  |
| 24 |  | <b>8- Formal Language and Machines</b><br>1- Introduction<br>2- Principle Concepts<br>3- Languages   |  |  |
| 25 |  | 4- Crammers<br>5- Type of Crammer<br>6- Machines   |  |  |
| 26 |  | <b>9- The Mathematical Systems and the Groups</b><br>1- Introduction<br>2- Principle Concepts<br>3- Mathematical Systems<br>4- Groups<br>5- Cossets<br>6- Normal Subgroups<br>7- Quotient group<br>8- Homomorphism & Isomorphism<br>9- Rings<br>10- Fields |  |  |

**Instructor Signature:**

**Dean Signature:**