



## Course Weekly Outline

<b>Course Instructor</b>	Akba E. Ali				
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<b>Title</b>	Discrete Mathematical structures				
<b>Course Coordinator</b>	Type here the name of course coordinator				
<b>Course Objective</b>	is the study of mathematical structures that are fundamentally discrete, in the sense of not supporting or requiring the notion of <u>continuity</u> . Most, if not all, of the objects studied in finite mathematics are <u>countable sets</u> , such as <u>integers</u> , finite <u>graphs</u> , and <u>formal languages</u>				
<b>Course Description</b>	Set theory- Mathematical induction- Relations- Functions - Logic and propositions -- Graphs-Tree-Formal languages -FSM-FA				
<b>Textbook</b>	<ul style="list-style-type: none"> <li>- Theory and problems of Discrete mathematics, by Seymour Lipschutz &amp; Marc Lars Lipson, Schaum's Outline Series, third edition 2007</li> <li>- Discrete mathematical structures for computer science by Bernard Kolman &amp; Robert C. Busby</li> </ul>				
<b>References</b>	<ul style="list-style-type: none"> <li>- DISCRETE STRUCTURES, AMIN WITNO, Revision Notes and Problems 2006, <a href="http://www.witno.com">www.witno.com</a></li> <li>- Discrete mathematics for New technology, Rowan Garnier &amp; John Taylor (Second Edition 2002)</li> <li>- <a href="http://www.math.uvic.ca/faculty/gmacgill/guide">http://www.math.uvic.ca/faculty/gmacgill/guide</a></li> <li>- <a href="http://rutherglen.ics.mq.edu.au/wchen/Indmfolder/Indm.html">http://rutherglen.ics.mq.edu.au/wchen/Indmfolder/Indm.html</a></li> <li>- <a href="http://en.wikibooks.org/wiki/Discrete_mathematics/Set_theory">http://en.wikibooks.org/wiki/Discrete_mathematics/Set_theory</a></li> </ul>				
<b>Course Assessment</b>	Term Tests	Laboratory	Quizzes	Project	Final Exam
	30%		10%	----	60%
<b>General Notes</b>					



## Course weekly Outline

week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1	18/11/2014	Set theory-sets & subsets		
2	25/11/2014	how to specify sets- Operations on sets-		
3	2/12/2014	Power set- Classes of sets – Finite sets, counting principle		
4	16/12/2014	Mathematical induction		
5	23/12/2014	Relations- Computer representation of relations - properties of relations – Closure properties, Inverse relations, Composition of relations		
6	30/12/2014	Functions-types of functions, Geometrical Characterization of functions,		
7	6/1/2015	عطلة		
8		امتحان		
<b>Half-year Break</b>				
17	3/2/2015	Recursively defined functions.		
18	10/2/2015	Logic and propositions- Equivalency Tautology & Contradiction argument, examples		
19	17/2/2015	Graphs-definition-graphs & multigraphs- subgraph – degree of graph		
20	24/2/2015	Walk –length of walk- trail- path- cycle- the bridges of konnisberg		
21	3/3/2015	Traversable multigraphs-		

		special graph- graph matrices		
<b>22</b>	<b>10/3/2015</b>	Minimum Spanning Trees Labeled graphs – trees- rooted tree-		
<b>23</b>	<b>17/3/2015</b>	ordered rooted tree- polish notation		
<b>24</b>	<b>24/3/2015</b>	polish notation examples		
<b>25</b>	<b>31/3/2015</b>	امتحان		
<b>26</b>	<b>7/4/2015</b>	Finite state machines		
<b>27</b>	<b>14/4/2015</b>	Finite automata (examples)		
<b>28</b>	<b>21/4/2015</b>	Optimistic approach to construct FSM		
<b>29</b>	<b>28/4/2015</b>	Deterministic Finite State Automata.		
<b>30</b>	<b>5/5/2015</b>	امتحان		
<b>31</b>				
<b>32</b>				

**Instructor Signature:**

**Dean Signature:**