



**Course Syllabus Form**

<b>1. College:</b> College of Business Administration							
<b>2. Department:</b> Management and Marketing							
<b>3. Program:</b> All B.Sc programs in the College of Business Administration							
<b>4. Course code:</b> QM350							
<b>5. Course title:</b> Operations Research							
<b>6. Course credits:</b> 3							
<b>7. Pre-requisites:</b> QM250							
<b>8. Course Instructor:</b> Hatem Masri      office no. S1B-130      office telephone: 17438557							
<b>9. Course web-page:</b> <a href="http://www.hatemmasri.com">http://www.hatemmasri.com</a>							
<b>10. Course coordinator:</b> DR. ABU JAFAR M SUFIAN							
<b>11. Academic year:</b> 2015-2016							
<b>12. Semester:</b>		First	X	Second	Summer		
<b>13. Textbook(s):</b> An Introduction to Management Science, Quantitative Approaches to Decision Making, By Anderson, D.R., Sweeney, D. J., Williams, T.A., and Martin, K, 2009 edition, Cengage Learning ( <a href="http://cws.cengage.co.uk/aswims/">http://cws.cengage.co.uk/aswims/</a> )							
<b>14. References:</b> 1) Introduction to Management Science, Bernard W. Taylor, 11 <sup>th</sup> edition, Prentice Hall 2) Introduction to Operations Research by F.S. Hillier, and G.J. Lieberman. 9 <sup>th</sup> edition, McGraw Hill.							
<b>15. Other resources used (e.g. e-Learning, field visits, periodicals, software, etc.):</b> Software (Management Scientist/Excel)							
<b>16. Course description (from the catalog):</b> Modeling, Linear programming, Linear programming applications, decision analysis, Simulation, Forecasting							
<b>17. Course Intended Learning Outcomes (CILOs):</b>							
		<i>Mapping to PILOs</i>					
<b>CILOs</b>		a	b	c	d	e	f
1. Demonstrate an understanding of the theory behind the standard OR formulae and algorithms presented		X					
2. Formulate and solve elementary problems requiring the use of these formulae and algorithms, both analytically and using appropriate software.				X			X
3. Develop a report that describes the model and the solving technique, analyze the results and propose recommendations in language understandable to the decision-making				X	X		
4. Simulate a real system by experimenting				X			
5. Understand various important concepts in forecasting and different approaches for modelling trend, seasonality				X			
6. Develop critical thinking and objective analysis of decision problems				X		X	

<b>18. Course assessment:</b>					
<i>Assessment Type</i>	<i>Topics</i>	<i>Date</i>	<i>CILOS</i>	<i>Weight</i>	
2 Quizzes/ Computer Project				20%	
Test 1	1,2,3		1,2	20%	
Test 2	4,5		3	20%	
Final	6,7,8,9		4,5,6	40%	
<b>Total</b>				100%	
<b>19. Course Weekly Breakdown *</b>					
<i>Week</i>	<i>Topics covered</i>	<i>Pages</i>	<i>CILOs</i>	<i>Teaching Method</i>	<i>Assessment</i>
<b>W1</b> <b>17-18</b> <b>Feb</b>	<b>[1] INTRODUCTION</b> Introduction to Management Science / Models	2-5 10-14	1,2	<i>Explaining Demonstrating</i>	<b>Quizzes, Assignments, Projects and Test 1</b>
<b>W2</b> <b>21-25</b> <b>Feb</b>	<b>[2] AN ITRODUCTION TO LINEAR PROGRAMMING</b> A maximization problem / Graphical solution procedure / Extreme points and the optimal solution / Computer Solution	33-56	2,3		
<b>W3</b> <b>28Feb</b> <b>-3Mar</b>	A simple minimization problem / Special cases / General linear programming notation	57-67	2,3		
<b>W4</b> <b>6-10</b> <b>March</b>	<b>[3] LINEAR PROGRAMMING APPLICATIONS</b> The process of problem formulation / Production Management / Marketing and media applications / Financial Applications/ Transportation Problem		1,2		
<b>W5</b> <b>13-17</b> <b>March</b>	<b>[4] LINEAR PROGRAMMING: THE SIMPLEX METHOD</b> An algebraic overview of the simplex method / Tableau form/ Setting up the initial simplex tableau / Improving the solution/ Calculating the next tableau	223-241	1,2	<i>Explaining Demonstrating</i>	<b>Quizzes, Assignments, Projects and Test 2</b>
<b>W6</b> <b>20-24</b> <b>March</b>	Tableau form: The general case / Solving a minimization problem / special cases	242-256	2,3		
<b>W7</b> <b>27-31</b> <b>March</b>	<b>[5] SIMPLEX-BASED SENSITIVITY ANALYSIS AND DUALITY</b> Sensitivity analysis with the simplex tableau / Duality/ Computerized Assignment	<b>267-277</b> <b>279-285</b>	<b>2,3</b>		

<b>W8</b> <b>3-7</b> <b>April</b>	<b>[6] SIMULATION</b> Risk analysis	<b>563-577</b>	<b>1,4</b>	<b>Explaining</b> <b>Demonstrating</b>	<b>Quizzes,</b> <b>Assignments,</b> <b>Projects and</b> <b>Final</b>
<b>W9</b> <b>10-14</b> <b>April</b>	Queuing simulation	583-590	2,4	<i>Explaining</i> <i>Demonstrating</i>	
<b>W10</b> <b>17-21</b> <b>April</b>	<b>Mid Semester Break</b>				
<b>W11</b> <b>24-28</b> <b>April</b>	<b>[7] FORECASTING</b> Components of a time Series	715-720	1,5	<i>Explaining</i> <i>Demonstrating</i>	<b>Quizzes,</b> <b>Assignments,</b> <b>Projects and</b> <b>Final</b>
<b>W12</b> <b>1-5</b> <b>May</b>	Trend and Seasonal Components	732-740	2,5	<i>Explaining</i> <i>Collaborating</i>	
<b>W13</b> <b>8-12</b> <b>May</b>	<b>[8] DECISION ANALYSIS</b> Problem formulation / Decision making without probabilities	613-620	1,6	<i>Explaining</i> <i>Demonstrating</i>	
<b>W14</b> <b>15-19</b> <b>May</b>	Decision making with probabilities/ Risk analysis and Sensitivity analysis	620-630	2,6		
<b>W15</b> <b>22-26</b> <b>May</b>	<b>[9] MARKOV PROCESSES</b> Market Share Analysis	<i>ON CD</i> <i>2-10</i>	3,6	<i>Explaining</i> <i>Collaborating</i> <i>Demonstrating</i>	
<b>W16</b> <b>29 May</b> <b>-2 June</b>	<b>[9] MARKOV PROCESSES</b> Market Share Analysis	<i>ON CD</i> <i>2-10</i>	3,6	<i>Explaining</i> <i>Collaborating</i> <i>Demonstrating</i>	
<b>W17</b> <b>5-7</b> <b>June</b>	<b>Revision and discussion</b>			<b>Collaborating</b> <b>And Learning</b> <b>by teaching</b>	

\* There might be slight variation in the coverage of the weekly topics due to public Holidays.