

## **Bachelor's degree in Science (Operations Research)**

**The plan of study for the Department of Statistics and Operations Research**

**Specialization: Operations Research**

**Degree: Bachelor of Science**

<b>Preparatory Year ( 31 credit hours)</b>				
<b>Course Code</b>	<b>Title</b>	<b>Credit Hours</b>	<b>Pre-requisite(s)</b>	<b>Co-requisite(s)</b>
ENG 140	English Language 1	8		
ENG 150	English Language 2	8		
MATH 140	Introduction to Mathematics	2		
MATH 150	Differential Calculus	3		
CT 140	Computer skills	3		
CI 140	Learning, Thinking and Research Skills	3		
CHS 140	Health and fitness	2		
MC150	Communication skills	2		
<b>Total</b>		<b>31</b>		

**University requirements (8 credits hours)**

**A student chooses 8 credits hours from the Islamic Culture courses**

<b>Compulsory Requirements Within the Department (59 credits)</b>				
<b>Course Code</b>	<b>Title</b>	<b>Credit Hours</b>	<b>Pre-requisite(s)</b>	<b>Co-requisite(s)</b>
OPER 100	Introduction to Operations Research	4	MATH 150	STAT 100
OPER 213	Linear Programming	4	OPER 100	MATH 244
OPER 322	Inventory Control	3	OPER 213, MATH 207	
OPER 331	Non-Linear Optimization	4	OPER 213, MATH 207	
OPER 351	Network Analysis	3	OPER 213, CSC 202	
OPER 382	Decision and Game Theory	4	OPER 213	
OPER 435	Numerical Methods in Operations Research	3	OPER 331, OPER 351	
OPER 441	Modeling and Simulation	4	STAT 215, CSC 202	
OPER 472	Stochastic Processes and Queuing Theory	4	OPER 213, STAT 215	
OPER 497	Graduation Project (1)	1	OPER 351	OPER 435 OPER 441 OPER 472
OPER 498	Graduation Project (2)	2	OPER 497	

STAT 100	Introduction to Statistics	3	MATH 150	
STAT 105	Statistical Methods	4	STAT 100	
STAT 215	Probability (1)	4	STAT 100, MATH 111	
STAT 223	Theory of Statistics (1)	3	STAT 215	
STAT 328	Statistical Packages	3	STAT 105	
STAT 332	Regression Analysis	3	STAT 328, MATH 244	
STAT 436	Time Series and Forecasting	3	STAT 332	
<b>Total</b>		<b>59</b>		

<b>Compulsory Requirements Outside the Department (17 credits)</b>				
<b>Course Code</b>	<b>Title</b>	<b>Credit Hours</b>	<b>Pre-requisite(s)</b>	<b>Co-requisite(s)</b>
MATH 111	Integral Calculus	4	MATH 150	
MATH 207	Advanced Integral and Differential Calculus	3	MATH 111	
MATH 244	Linear Algebra	3	MATH 111	
CSC 201	Computer Programming	4		
CSC 202	Computer Programming using MATLAB	3	CSC 201	
<b>Total</b>		<b>17</b>		

<b>Elective Requirements From Within the Department Group A (student selects 12 credit hours from this group)</b>				
<b>Course Code</b>	<b>Title</b>	<b>Credit Hours</b>	<b>Pre-requisite(s)</b>	<b>Co-requisite(s)</b>
OPER 313	Integer Programming	3	OPER 213	
OPER 453	Scheduling and Sequencing	3	OPER 213	
OPER 490	Special Applications in Operations Research	3	OPER 331, OPER 351	
OPER 492	Prices and Revenue Management	3	OPER 331, STAT 215	
STAT 315	Probability (2)	3	STAT 215, MATH 207	
STAT 326	Theory of Statistics (2)	3	STAT 223, MATH 207	STAT 315
STAT 325	Decisions Theory	3	STAT 223	
STAT 333	Nonparametric Statistical Methods	3	STAT 105	
STAT 331	Sampling Techniques	3	STAT 223	
STAT 362	Reliability Theory	3	STAT 223	
STAT 401	Econometrics	3	STAT 332	
STAT 431	Insurance Methods	3	STAT 326	
STAT 434	Linear Models	3	MATH 244	
STAT 437	Design and Analysis of Experiments	3	STAT 328	
STAT 441	Quality Control	3	STAT 326	

Elective Requirements From Outside the Department Group B (student choose 9 credit hours from this group)				
Course Code	Title	Credit Hours	Pre-requisite(s)	Co-requisite(s)
MATH 160	Computational Mathematics	2	CT 140 & MATH 111	
MATH 225	Introduction to Differential Equations	4	MATH 207	
MATH 352	Numerical Analysis	4	MATH 160 & MATH 244	
MATH 382	Real Analysis I	4	MATH 207	
MGT 101	Principles of Management and Business	3		
MGT 102	Human Resources Management	3	MGT 101	
MGT 103	Entrepreneurship	3	MGT 101	
MGT 104	Principles of Public Administration	3		
MGT 319	Management of Small and Medium Size Businesses	3	MGT 101	
MGT 371	Operations Management	3	MGT 101	
MIS 201	Management Information Systems	3	MGT 101	
ACCT 201	Principles of Accounting and Financial Reporting	3		
ACCT 202	Principles of Cost Managerial Accounting	3	ACCT 201	
ACCT 311	Accounting for Government and Non-Profit Organizations	3	ACCT 201	
ACCT 317	Intermediate Accounting (1)	3	ACCT 201	
ACCT 318	Intermediate Accounting (2)	3	ACCT 317	
ECON 101	Principles of Microeconomics	3		
ECON 102	Principles of Macroeconomics	3	ECON 101	
ECON 201	Microeconomics Analysis	3	ECON 102	
ECON 202	Macroeconomics Analysis	3	ECON 102	
ECON 211	Money and Banking	3	ECON 102	
ECON 314	Islamic Economics	3	ECON 102	
ECON 317	Managerial Economics	3	ECON 102	
ECON 318	Transportation and Insurance Economics	3	ECON 102	
MKT 201	Principles of Marketing	3	MGT 101 & Econ 101	
FIN 200	Principles of Finance	3	ACCT 201	
FIN 210	Corporate Finance	3	FIN 200	
FIN 220	Investment Essentials	3	FIN 200	
FIN 230	Financial markets and institutions	3	FIN 200	
FIN 240	Principles of Risk & Insurance	3	FIN 200	
FIN250	International Finance	3	FIN 200	
QUA 127	Mathematics of Finance	3	MATH 140	