**Content**

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
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| PM545 | Quantitative Methods in Marketing | 1 | 3 | 0 | 0 | 3 | 7 |

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| Prerequisites | |
| Admission Requirements | |

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| Language of Instruction | Turkish |
| Course Type | Compulsory |
| Course Level | Masters Degree |
| Objective | Course objective is to give to the student an in-depth presentation of the tools and techniques of management science as applied to real-word problems. The subject matter includes linear programming, sensitivity analysis, distribution models, integer and mixed integer linear programming models. |
| Content | 1) Introduction to operational research and basic concepts. <br> 2)Linear programming, assumptions and formulation of the model. <br> 3) Graphical solution of a linear programming model. <br> 4) Solution of a linear programming model.- Solution of a standard maximization problem using Simplex method. <br> 5) Solution of a linear programming model.- Solution of a standard minimization problem using Simplex method. <br> 6) Solution of a linear programming model with mixed constraints using Simplex method and special cases of a linear programming model by use of computer. <br> 7) Sensitivity analysis. <br> 8) Applications of a linear programming to the management problems. <br> 9) The dual problem. <br> 10) Transportation problem and solving technics – Nord-West corner rule and stepping step method. <br> 11) Transportation problem and solving technics – Modified distribution method and Vogel approximation method (VAM). <br> 12) Transshipment, assignment and solving technics. <br> 13) Travelling salesman problem. |
| References | Dantzig, George Bernard. Linear programming and extensions. Princeton : Princeton University Press. 1998 <br> Darst, Richard B. Introduction to Linear Programming: Applications and extentions. New York : M. Dekker, 1991 <br> Thie, Paul R. An introduction to linear programming and game theory. New York : Wiley, 1988. <br> Timor, Mehpare. Yöneylem Araştırması ve İşletmecilik Uygulamaları, İstanbul : İÜ. Basımevi, 2001. <br> Top, Aykut. Üretim Yönetimi, Ankara : Nobel Basımevi, 2006 |

**Theory Topics**

| Week | Weekly Contents |
|---|---|
| 1 | Introduction to operational research and basic concepts. Linear programming, assumptions and formulation of the model. Graphic solution of a linear programming model. |
| 2 | Solution of a linear programming model.- Solution of a standard maximization problem using Simplex method. |
| 3 | Solution of a linear programming model.- Solution of a standard minimization problem using Simplex method. |
| 4 | Solution of a linear programming model with mixed constraints using Simplex method and special cases. |
| 5 | Solution of a linear programming model by use of a computer. |
| 6 | Sensitivity analysis. |

| Week | Weekly Contents |
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| 7 | Mid-term exam 1. |
| 8 | Applications of a linear programming to the management problems. |
| 9 | The dual problem. |
| 10 | Transportation problem and solving technics – Nord-West corner rule and stepping step method. |
| 11 | Transportation problem and solving technics – Modified distribution method and Vogel approximation method (VAM). |
| 12 | Mid-term exam 1. |
| 13 | Transshipment, assignment and solving technics. |
| 14 | Travelling salesman problem. |