

## Content

| Course Code | Course Name          | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|----------------------|----------|--------|----------|-----|--------|------|
| ML517       | Quantitative Methods | 2        | 3      | 0        | 0   | 3      | 6    |

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|------------------------|--|
| Prerequisites          |  |
| Admission Requirements |  |

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| Language of Instruction | Turkish                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Course Type             | Compulsory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Course Level            | Masters Degree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Objective               | This course aims to teach the basic concepts, principles and applications related to research methodology and techniques of digital logistics management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Content                 | <p>1) Research project, organization and analysis of data. Measures of central tendency and dispersion.</p> <p>2) Probability and laws of probability. Elementary probability distributions of discrete and continuous random variables.</p> <p>3) The sampling and statistical inference methods (Estimating the average and the proportion of a population).</p> <p>4) Parametric hypothesis tests (tests of the mean and the proportion of a population).</p> <p>5) Parametric hypothesis tests - Comparison of means of two or more populations. Analysis of variance.</p> <p>6) Parametric hypothesis tests - Comparison of proportions of two populations. Parametric hypothesis tests (Comparison of proportions of multiple populations, Chi2 tests for homogeneity and conformity).</p> <p>7) Regression analysis - Simple linear regression analysis, multiple regression analysis on Excel and SPSS.</p> <p>8) Logistics strategy and planning. Forecasting logistics requirements.</p> <p>9) Inventory policy decisions. Methods and models of inventory management.</p> <p>10) Purchasing decisions and order quantity.</p> <p>11) Linear programming and resolution of models with Simplex algorithm. Resolution of integer and binary LP problems in Excel.</p> <p>12) Transportation problem and decisions.</p> |
| References              | <p>Daniel Wayne W. &amp; Terrell James C., Business Statistics, 5. edition, Houghton Mifflin, USA, 1989.</p> <p>Kobu, Bülent. Üretim Yönetimi, Genişletilmiş ve güncelleştirilmiş 11. baskı. İstanbul, Avcıol Basım Yayın, 2003.</p> <p>Newbold, Paul, Statistics for Business and Economics, 7. edition, Pearsons Education, NJ 2010.</p> <p>Newbold, Paul, İşletme ve İktisat için İstatistik, Çeviren Ümit Şenesen, Literatür Yayıncılık.</p> <p>Orhunbilge, Prof. Dr. Neyran, Örneklem Yöntemleri ve Hipotez Testleri, İ.Ü.İşletme Fak. Yayınları Avcıol Basım Yayın, 2. Baskı, İstanbul 2000.</p> <p>Orhunbilge, Prof. Dr. Neyran, Uygulamalı Regresyon ve Korelasyon Analizi, 2. B., İ.Ü.İşletme Fak. Yayınları, İ.Ü. Basım ve Yayınevi Md., İstanbul 2002</p> <p>Ronald, H Ballou, Business Logistics Management, Prentice-Hall Inc., 3rd Edition, NY 1992.</p> <p>Ronald, H Ballou, Business Logistics/Supply Chain Management, Pearson Prentice Hall Inc., 5th Edition, NJ 2004.</p> <p>Stock, James R. ve Douglas M. Lambert. Strategic Logistics Management, 4. b. Singapore, Mc Graw-Hill, 2001.</p> <p>Zipkin, Paul H., Foundations of Inventory Management, USA: Mc Graw-Hill, 2000.</p>                                                                                                                          |

## Theory Topics

| Week | Weekly Contents                                                                                                                                                                                         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Introduction to logistics management, research project, organization and analysis of data. Measures of central tendency and dispersion.                                                                 |
| 2    | Probability and laws of probability. Elementary probability distributions of discrete and continuous random variables.                                                                                  |
| 3    | The sampling and statistical inference methods (Estimating the average and the proportion of a population).                                                                                             |
| 4    | Parametric hypothesis tests (tests of the mean and the proportion of a population).                                                                                                                     |
| 5    | Parametric hypothesis tests - Comparison of means of two or more populations. Analysis of variance.                                                                                                     |
| 6    | Parametric hypothesis tests - Comparison of proportions of two populations. Parametric hypothesis tests (Comparison of proportions of multiple populations, Chi2 tests for homogeneity and conformity). |
| 7    | Regression analysis - Simple linear regression analysis, multiple regression analysis on Excel and SPSS.                                                                                                |
| 8    | Mid term.                                                                                                                                                                                               |
| 9    | Logistics strategy and planning. Forecasting logistics requirements.                                                                                                                                    |
| 10   | Inventory policy decisions. Methods and models of inventory management.                                                                                                                                 |
| 11   | Purchasing decisions and order quantity.                                                                                                                                                                |
| 12   | Linear programming and resolution of models with Simplex algorithm. Resolution of integer and binary LP problems in Excel.                                                                              |
| 13   | Transportation problem and decisions.                                                                                                                                                                   |
| 14   | Transportation problem and decisions.                                                                                                                                                                   |