

## Faculty of Economics / BUSINESS ECONOMICS / Portfolio management

| Course:                          | Portfolio management  |          |              |  |  |  |  |  |
|----------------------------------|---|----------|--------------|--|--|--|--|--|
| Course ID                        | Course status   | Semester | ECTS credits | <b>Lessons</b> (Lessons+Exer cises+Laboratory) |  |  |  |  |
| 12446                            | Mandatory   | 2        | 5            | 2+2+0  |  |  |  |  |
| Programs                         | BUSINESS ECONOMICS  |          |              |  |  |  |  |  |
| Prerequisites                    | None  |          |              |  |  |  |  |  |
| Aims                             | Portfolio Management provides an overview of basic theoretical concepts and analytical procedures necessary for understanding and managing financial assets After completing these course students will be able to understand complex analytical concepts behind the portfolio management process   |          |              |  |  |  |  |  |
| Learning outcomes                | After passing this exam, the student will be able to: 1. Define the model for calculating return and risk of individual securities and financial portfolios. 2. Explain the statistical concepts of financial risks measurement. 3. Evaluate and forecast the relationship between expected return and risk of N securities portfolio, using statistical software. 4. Describe and solve the problem of the financial portfolio optimization. 5. Critically think about the concept of the capital market equilibrium and compare various forms of equilibrium models. 6. Make optimal portfolio selection in national and international context 7. Describe and select appropriate portfolio strategy. |          |              |  |  |  |  |  |
| Lecturer / Teaching<br>assistant | Saša Popović, Ph.D., Jelena Jovović, MSc  |          |              |  |  |  |  |  |
| Methodology                      | Lectures and Practical Exercises, Group and Individual Case studies   |          |              |  |  |  |  |  |
| Plan and program of<br>work      |   |          |              |  |  |  |  |  |
| Preparing week                   | Preparation and registration of the semester  |          |              |  |  |  |  |  |
| I week lectures                  | Introduction to Portfolio Management: Introduction with the course and literature; Method of examination and time schedule of exams; Initial test   |          |              |  |  |  |  |  |
| I week exercises                 | Introduction to Portfolio Management: Introduction with the course and literature; Method of examination and time schedule of exams; Initial test   |          |              |  |  |  |  |  |
| II week lectures                 | Models for securities risk and returns assessments: Rational investor definition; Multidisciplinary approach to portfolio management; Risk definition and types in securities trade   |          |              |  |  |  |  |  |
| II week exercises                | Models for securities risk and returns assessments: Rational investor definition; Multidisciplinary approach to portfolio management; Risk definition and types in securities trade   |          |              |  |  |  |  |  |
| III week lectures                | Basic statistical concepts in portfolio management: Risk and return of security; Gaussian distribution<br>and 3 sigma rule; Risk and return of financial portfolio; Case study: descriptive statistics of securities<br>returns in Excel  |          |              |  |  |  |  |  |
| III week exercises               | Basic statistical concepts in portfolio management: Risk and return of security; Gaussian distribution<br>and 3 sigma rule; Risk and return of financial portfolio; Case study: descriptive statistics of securities<br>returns in Excel  |          |              |  |  |  |  |  |
| IV week lectures                 | Financial portfolio general characteristics: Portfolio of N securities; Correlation matrix  |          |              |  |  |  |  |  |
| IV week exercises                | Financial portfolio general characteristics: Portfolio of N securities; Correlation matrix  |          |              |  |  |  |  |  |
| V week lectures                  | Combination of two risky assets: Analytical interpretation of two risky assets portfolio; Analysis of three scenarios: $\rho=1$ , $\rho1$   |          |              |  |  |  |  |  |
| V week exercises                 | Combination of two risky assets: Analytical interpretation of two risky assets portfolio; Analysis of three scenarios: $\rho=1$ , $\rho1$   |          |              |  |  |  |  |  |
| VI week lectures                 | Graphical interpretation of probable portfolio outcomes: Attainable set and efficient frontier; Short-<br>selling effect on financial portfolio; Risk-free assets effect on financial portfolio   |          |              |  |  |  |  |  |
| VI week exercises                | Graphical interpretation of probable portfolio outcomes: Attainable set and efficient frontier; Short-<br>selling effect on financial portfolio; Risk-free assets effect on financial portfolio   |          |              |  |  |  |  |  |
| VII week lectures                | Portfolio optimization: Efficient frontier calculation; Optimal portfolio selection; Case study: portfolio optimization in Excel using analytical tool Solver   |          |              |  |  |  |  |  |
| VII week exercises               | Portfolio optimization: Efficient frontier calculation; Optimal portfolio selection; Case study: portfolio optimization in Excel using analytical tool Solver   |          |              |  |  |  |  |  |
| VIII week lectures               | International diversification: International diversification methods; International diversification effect of financial portfolio; International diversification implementation   |          |              |  |  |  |  |  |
| VIII week exercises              | International diversification: International diversification methods; International diversification effect of financial portfolio; International diversification implementation   |          |              |  |  |  |  |  |



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| IX week lect  | ures                   | Factorial models and methods: Single-factor model; Multi-factor model   |  |   |   |   |                                       |  |  |  |
|---|------------------------|---|--|---|---|---|---------------------------------------|--|--|--|
| IX week exe   | rcises                 | Factorial models and methods: Single-factor model; Multi-factor model   |  |   |   |   |                                       |  |  |  |
| X week lectu  | ires                   | Capital market efficiency: Testing efficient market hypothesis; Theoretical basis of equilibrium model;<br>Case study: efficient market analysis using Event Study method |  |   |   |   |                                       |  |  |  |
| X week exer   | cises                  | Capital market efficiency: Testing efficient market hypothesis; Theoretical basis of equilibrium model;<br>Case study: efficient market analysis using Event Study method |  |   |   |   |                                       |  |  |  |
| XI week lect  | ures                   | Capita<br>Arbitra   | Capital Market equilibrium models: Capital assets pricing model (CAPM); CML and SML forms of CAPM<br>Arbitrage pricing theory model (APT)  |   |   |   |                                       |  |  |  |
| XI week exe   | rcises                 |   |  |   |   |   |                                       |  |  |  |
| XII week lect   | tures                  | Portfolio strategies: Portfolio management global concept; Active portfolio strategies; Passive portfolio strategies  |  |   |   |   |                                       |  |  |  |
| XII week exe  | ercises                | Portfolio strategies: Portfolio management global concept; Active portfolio strategies; Passive portfolio strategies  |  |   |   |   |                                       |  |  |  |
| XIII week lec   | tures                  | Case study: Financial assets strategic allocation model   |  |   |   |   |                                       |  |  |  |
| XIII week ex  | ercises                | Case study: Financial assets strategic allocation model   |  |   |   |   |                                       |  |  |  |
| XIV week led  | tures                  | Exam  |  |   |   |   |                                       |  |  |  |
| XIV week ex   | ercises                | Exam  |  |   |   |   |                                       |  |  |  |
| XV week lec   | tures                  | Endterm exam  |  |   |   |   |                                       |  |  |  |
| XV week exe   | ercises                | Endterm exam  |  |   |   |   |                                       |  |  |  |
| Student wo  | orkload                | 2L+2E   |  |   |   |   |                                       |  |  |  |
| Per week  |                        |   |  | Per semester  |   |   |                                       |  |  |  |
| <ul> <li>5 creats x 40/30=6 hours and 40 minuts</li> <li>2 sat(a) theoretical classes</li> <li>0 sat(a) practical classes</li> <li>2 excercises</li> <li>2 hour(s) i 40 minuts</li> <li>of independent work, including consultations</li> </ul> |                        |   | <ul> <li>6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts</li> <li>Necessary preparation before the beginning of the semester<br/>(administration, registration, certification):</li> <li>6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts</li> <li>Total workload for the subject:</li> <li>5 x 30=150 hour(s)</li> <li>Additional work for exam preparation in the preparing exam period,<br/>including taking the remedial exam from 0 to 30 hours (remaining time from<br/>the first two items to the total load for the item)</li> <li>30 hour(s) i 0 minuts</li> <li>Workload structure: 106 hour(s) i 40 minuts (cources), 13 hour(s) i 20<br/>minuts (preparation), 30 hour(s) i 0 minuts (additional work)</li> </ul> |   |   |   |                                       |  |  |  |
| Student obligations   |                        |   | Compulsory attendance to lectures and exercises, group and individual case studies   |   |   |   |                                       |  |  |  |
| Consultations   |                        |   |  |   |   |   |                                       |  |  |  |
| Literature  |                        |   | Popovic, Sasa: Portfolio analysis – quantitative aspects of investing in securities, Podgorica, 2000. Frank Reilly and Keith Brown, Investment Analysis and Portfolio Management, SouthWesternCollege, 2005 Robert Strong, Portfolio Construction, Management, and Protection, vol 5, South-Western Cegage Center, 2009  |   |   |   |                                       |  |  |  |
| Examination methods   |                        |   | • Lecture activities • Group research work - Case study • Practical<br>individual work • Written exam • Final exam   |   |   |   |                                       |  |  |  |
| Special remarks   |                        |   | <ul> <li>For the purpose of this course computer room necessary.</li> <li>Lectures and<br/>exercises can be held in English.</li> <li>For the purpose of this course we<br/>launched a web site www.finansije.net</li> </ul>   |   |   |   |                                       |  |  |  |
| Comment   |                        |   |  |   |   |   |                                       |  |  |  |
| Grade:  | F                      |   | E  | D   | С   | В   | А                                     |  |  |  |
| Number<br>of points   | less than 50<br>points |   | greater than or<br>equal to 50 points<br>and less than 60<br>points  | greater than or<br>equal to 60 points<br>and less than 70<br>points | greater than or<br>equal to 70 points<br>and less than 80<br>points | greater than or<br>equal to 80 points<br>and less than 90<br>points | greater than or<br>equal to 90 points |  |  |  |