**COURSE UNIT (MODULE) DESCRIPTION**

| Course unit (module) title | Code |
|---|---|
| **QUANTITATIVE BUSINESS DECISIONS** | |

| Lecturer(s) | Department(s) where the course unit (module) is delivered |
|---|---|
| **Coordinator:** Prof. dr. Linas Čekanavičius<br><br>**Other(s):** | Business School, Saulėtekio al. 22, Vilnius |

| Study cycle | Type of the course unit (module) |
|---|---|
| First | Compulsory |

| Mode of delivery | Period when the course unit (module) is delivered | Language(s) of instruction |
|---|---|---|
| Face-to face | Autumn | English / Lithuanian |

| Requirements for students | |
|---|---|
| **Prerequisites:** Microeconomics, Business Mathematics | **Additional requirements (if any):** |

| Course (module) volume in credits | Total student's workload | Contact hours | Self-study hours |
|---|---|---|---|
| 5 | 130 | 48 | 82 |

| Purpose of the course unit (module): programme competences to be developed | | |
|---|---|---|
| To acquaint students with the quantitative techniques which are widely used for business planning and decision making and to foster students' ability to employ those techniques for the solution of specific business problems. | | |
| **Learning outcomes of the course unit (module)** | **Teaching and learning methods** | **Assessment methods** |
| Uderstanding of the purpose and role of quantitative methods in business and economics: why it is possible and useful to employ mathematics and quantitative analysis for business planning and decision making, and what are both the potential and the limits of their usefulness. | Problem teaching; combination of theoretical insight with the modelling of practical (simulated) cases | Mid-term test (in written) aimed to reveal understanding of methodological foundations of quantitative techniques |
| Ability to identify, classify and interpret elements of quantitative analysis, applied in business and economics | Problem teaching; combination of theoretical insight with the modelling of practical (simulated) cases | Mid-term test (in written) aimed to reveal understanding of methodological foundations of quantitative techniques |
| Competence to select and apply relevant quantitative technique to the solution of specific business problem | Integral combination of lectures and tutorials: theoretical insights are immediately followed by the collective and individual | Class-work and final exam that will require application of learned quantitative models and techniques to given business decsion problems |

| | | |
|---|---|---|
| | analysis and solution of simulated decision problems. | |

| Content: breakdown of the topics | Contact hours | | | | | | | Self-study work: time and assignments | |
|---|---|---|---|---|---|---|---|---|---|
| | Lectures | Tutorials | Seminars | Exercises | Laboratory work | Internship/work placement | Contact hours | Self-study hours | Assignments |
| 1. Quantitative methods in decision making: goals, potentials and limits | 3 | | | | | | **3** | | |
| 2. Fundamentals of theory of measures | 2 | | | 2 | | | **4** | **4** | Measure scale identification tasks |
| 3. Subjective measurement methods | 3 | | | | | | **3** | **4** | Application of subjective measurement methods |
| 4. Types of equations | 2 | | | | | | **2** | **4** | Identification of equation type tasks |
| 5. Individual decision making strategies. Decision making under uncertainty. Assessment of information value. | 6 | | | 4 | | | **10** | **20** | Solution of simulated decision making (under uncertainty) problems |
| 6. Inventory control model. | 6 | | | 4 | | | **10** | **18** | Solution of simulated inventory control problems |
| 7. Queueing: simple queue model and multi-channel systems. | 6 | | | 4 | | | **10** | **20** | Solution of simulated queueing problems |
| 8. Introduction to simulation techniques: method Monte Carlo and its applications | 4 | | | 2 | | | **6** | **12** | Practical application of Monte Carlo modelling technique to business decisions |
| **Total** | **32** | | | **16** | | | **48** | **82** | |

| Assessment strategy | Weight, % | Deadline | Assessment criteria |
|---|---|---|---|
| Mid-term (written test) | 20 | October | Ability to give a reasoned answer to the theoretical multiple and/or dichotomous choice questions, to recognize, classify and interpret elements of quantitative techniques. |
| Control works (2) | 30 | November-December | Ability to recognize typical business decision problem, and to select and apply relevant quantitative technique for its solution, to perform mathematical computations and interpret obtained results. |
| In-class performance | | November-December | Students' performance in the in-class solution of assignments shall be rewarded by extra points |
| Final examination (written) | 50 | End of December / January | Ability to recognize typical business decision problem, and to select and apply relevant quantitative technique for its solution, to perform mathematical computations and interpret obtained results. |

| Author | Year of public | Title | Issue of a periodical or volume of a | Publishing place and house or web link |
|---|---|---|---|---|

| | ation | | publication | |
|---|---|---|---|---|
| **Compulsary reading** | | | | |
| Lucey, T. | 2002 | Quantitative Techniques (6th ed.). | | Thomson Learning |
| Render, B. , Stair, R.M. | 2011 | Quantitative Analysis for Management (11th ed.) | | Prentice-Hall |
| **Optional reading** | | | | |
| Wisniewski, M. | 2006 | Quantitative Methods for Decision Makers. (4th ed) | | Prentice Hall |
| Curwin, G.., Slater, R. | 2002 | Quantitative methods for business decisions (Part 6: Modelling). | | Thomson Learning |
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