Table S2.6.4. Form for the preparation of the course information sheets

Name of the subject: Intelligent Data Analysis

Code of the subject	Status of the subject	Semester	Number of ECTS credits	Class load
	Optional			

Study programme for which it is organized:
PhD program „Sustainable Development“
(Computer Science and Informatics)

Dependency by other subjects: none

Objectives of studying this subject:
The objective of this subject is to gain a deep insight into the methods of intelligent data analysis and their application in various areas of application.

Contents of the subject (teaching units, forms of students' individual work, forms of testing) presented per working weeks in the academic calendar:

Preparatory week	
I week	Data and information
II week	Multi-dimensionality of data
III week	Process of intelligent data analysis: • Problem definition • Data pre-processing • Data analysis using intelligent methods.
IV week	Evaluation of results: • Absolute and relative accuracy • Sensitivity and specificity • False positive and false negative • Error rate • Reliability of rules
V week	Cost-sensitive data analysis
VI week	
VII week	
VIII week	
IX week	
X week	
XI week	
XII week	
XIII week	
XIV week	
XV week	

Methods of education:
- lectures,
- project assignment.

Students' load

Weekly	In Semester
	• Lectures: 60 • Individual work: 210

Students' obligations during the teaching:

Literature:

- T. Hastie, R. Tibshirani, J. Friedman: *The Elements of Statistical Learning*, Springer Series in Statistics, Berlin, 2001.
- M.J.A. Berry, G.S. Linoff: *Data Mining Techniques for Marketing, Sales, and Customer Relationship Management*, Wiley, New York, NY, USA, 1997.
- Ian H. Witten, Eibe Frank: *Data Mining: Practical Machine Learning Tools and Techniques*, Second Edition (Morgan Kaufmann Series in Data Management Systems), San Francisco, CA, USA, 2000.
- P. Cabena, P. Hadjinijan, R. Stadler, J. Verhees, A. Zanasi: *Discovering Data Mining ~ From Concept to Implementation*, Prentice Hall Ptr., New Jersey, USA, 1997.
- P.R. Cohen: *Empirical Methods for Artificial Intelligence*, MIT Press, Cambridge, MA, USA, 1995.
- D. Pyle: *Data Preparation for Data Mining*, Morgan Kaufmann Publishers, Inc., San Francisco, CA, USA, 1995.
- S.M. Weiss, N. Indurkhya: *Predictive Data Mining ~ A practical guide*, Morgan Kaufmann Publishers Inc., San Francisco, CA, USA, 1998.
- M. Berthold, D. J. Hand: *Intelligent Data Analysis*, Springer, Berlin, 2007.

Learning outcomes (complied with the outcomes for the study programme):

Knowledge and understanding:

On completion of this course the student will be able to:

- show a deep insight knowledge in the area of the intelligent data analysis,
- conduct research in a selected application area using intelligent data analysis,
- analyze knowledge acquisition problems, synthesize an appropriate approach to problem solving and to evaluate chosen approach and results.

Transferable / Key skills and other attributes:

- Communication skills: written scientific report and oral defence, manner of expression at written and oral examination.
- Use of information technology: use of software tools for data processing analysis.
- Problem solving: analysis, design and research using intelligent data analysis methods.

Forms of tests and evaluation:

- completed project work – 50%
- oral examination – 50%

Name and surname of teacher and associate:

Iztok Fister

Particularities needed to be emphasized for the subject:

Note (if needed):