Complex exam minor subject

Applied Information Technology, Applications for Internet

Syllabus

Characteristics, behaviour and properties of the Distributed Information Systems (DIS). Distributed information system (multiprocessor systems, cloud systems, sensor networks, etc.) technologies, case studies and applications in practice. State values and resource management in DIS environment. Measurement process and interpretation possibilities of the data set by time series methods (wavelet, Fourier, dynamics, trends, rationalization, etc.). Physical processes of the resources of the loosely or tightly coupled DIS systems, analysis and determination of the optimal state trajectories.
Simple and multiple linear regression
Method of least squares and applications.
Nonlinear regression
Testing hypothesis for regression.
Preliminary analysis of time series with non-random components.
Linear time series, AR, MA, ARMA, SARIMA models.
Statistics of spatial temporal processes in frequency domain.
Basic properties of data produced by sensors.
Web applications; modelling ways for web-based applications, RUP and descendants. Development strategies; solutions for improving efficiency. Domain specific languages; domain driven design. IoT and sensor networks; efficient handling of large data.

Bibliography

1. Eric D. Kolaczyk, Statistical Analysis of Network Data: Methods and Models, Springer Science+Business Media, 2009.
2. George Bachmann, Lawrence Narici, Edward Beckenstein, Fourier and Wavelet Analysis, Springer, 2000.
3. D. C. Montgomery / G. C. Runger, Applied Statistics and Probability for Engineers, Wiley | ISBN 0471204544 | 3 edition (2002)
4. Shumway, R. H. & Stoffer, Time Series Analysis and Its Applications: With R Examples, D.S., Springer, 2011, 3e
5. Gerti Kappel, et all: Web Engineering: The Discipline of Systematic Development of Web Applications, Wiley; 1 edition (June 16, 2006), 0470015543

6. Eric Evans: Domain-Driven Design: Tackling Complexity in the Heart of Software, Addison-Wesley Professional; 1 edition (August 30, 2003), 0321125215

Compulsory subjects for this minor subject

Recommended subjects for this minor subject

With the approval of the program's leader:

1) Three courses must be selected from the following courses of the program:

- Novel approaches for Internet-based applications (Adamkó Attila)
- Statistical Analysis of the Distributed Systems (Gál Zoltán)
- Virtual reality systems (Gilányi Attila)
- Informatics in life sciences (Godó Zoltán)
- Stochastic data mining (Ispány Márton)
- Advanced data mining methods and applications (Ispány Márton)
- Functional Programming Languages and its Applications (Kósa Márk)
- Multiparadigm Programming in F# (Pánovics János)
- Symbolic Data Mining (Szathmáry László)
- Statistics with application to Infromation Technology (Terdik György)
- Statistics for high speed network data (Terdik György)
- Statistics and time series with applications (Terdik György)