Course title: Innovative ICT applications and business intelligence in tourism

ECTS: 7.5

Course title in English: Innovative ICT applications and business intelligence in tourism

General data about the course

Course Code: TUR004F

Level: Third-cycle course

Subject: Tourism Studies

Education:

Valid announce that from semester: spring 2014

ECTS: 3.75 + 3.75 (for home assignment)

Elaboration Date: 2014-06-10
Ratification date: 2014-06-14

Change date:

Responsible department: Department of Tourism Studies and Geography

Course description and aim

The lecture "Innovative ICT applications and business intelligence in tourism" gives an insight into the tourism domain as one of the most exciting application fields of information and communication technologies and presents selected and highly innovative ICT applications in tourism.

The first part of the lecture gives an introduction into the field of eTourism, motivates the strong need for information and communication technology in tourism as an information business and looks at the evolution of the field of eTourism, reasons and advantages of ICT-usage and latest trends and developments. Innovative ICT applications are presented and discussed especially in the areas of semantic web, new markets and online auctions, social media, recommender systems and mobile services. In all of these areas innovative approaches and selected case studies, based on state-of-the-art solutions will be presented and discussed.

Business Intelligence, i.e. the systematic collection and analysis of relevant business or market data in electronic form, constitutes an area of growing importance especially in the tourism domain. Due to the rapid growth of the world wide web the amount of available information on the tourism market, competitors and customers and their behaviour has increased dramatically.

Nevertheless, such data remains almost unused by most tourism stakeholders up to now. Online and offline, the possibilities of modern information technology for business intelligence and decision support are not used adequately. Methods from data mining enable to exploit up to now unused competitive potential for tourism organisations of all kind.

The second part of the lecture gives a profound overview on the area of business intelligence and presents basic techniques of data mining and application fields in the tourism domain. Students will understand the approaches behind the most important data mining techniques, like decision trees, cluster analysis, association rules, etc., and learn how to apply those techniques to concrete data mining tasks based on the data mining toolset RapidMiner.

Goals

After completing the course, the students will

- Have a thorough understanding of the strong need for the application of information and communication technologies in tourism and a profound insight into modern ICT applications within the tourism domain,
- Critically assess latest ICT trends and developments, and their potential to change tourism market structures and provoke new and dynamic business models
- Have a good knowledge of the state of the art methods in Business Intelligence and Data Mining,
- Master the main Business Intelligence-based methods and Data Mining techniques related to the course content and link them to the state-of-the art research in the tourism domain.

Contents and course structure

The lecture covers the following aspects of eTourism and business intelligence:

1. Introduction to e-Tourism
    a. Tourism as information business
    b. History of e-Tourism
    c. ICT usage in tourism – an overview
    d. Trends and latest developments
2. Innovative ICT applications in tourism
    a. Semantic web
    b. New markets and online auctions
    c. Social media
    d. Recommender systems
    e. Mobile services
3. Introduction to business intelligence & data mining
    a. Basic data mining techniques
    b. Data mining toolset RapidMiner®
4. Preprocessing
    a. Data cleaning

    b. Data transformation
5. Explorative data analysis and statistical approaches
    a. Explorative data analysis
    b. Estimation
6. Association rules
    a. FP-Growth
    b. Application of association rules
7. Supervised learning (classification)
    a. Methodology for supervised learning
    b. k-nearest neighbor algorithm
    c. Decision trees
    d. Classifier evaluation and ensembling
8. Unsupervised learning (clustering)
    a. Methodology for unsupervised learning
    b. k-means clustering

Teaching

The course is based on class-room teaching, transmitting theoretical knowledge on ICT applications in tourism and data mining techniques and approaches, and supervised exercises making use of the open-source data mining toolset RapidMiner.

Admission Requirements

To be admitted to the course the candidate should be enrolled in a postgraduate program. A candidate permanently employed at Mid Sweden University can be offered a place on postgraduate courses with vacancies, provided that requirements for eligibility and other conditions have been fulfilled and that the person participates in the course within the terms of his/her employment.

Examination form

Attendance and active participation in seminars and discussions is requested
Individual written home assignments and seminars

3.75 ECTS for course attendance
3.75 ECTS for home assignment

Evaluation

Grades are given in the form “passed” or “non-passed”.

Literature

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