UNIVERSITY OF BORÅS

Cloud Computing Adoption
Migrering till molntjänster

5 credits
5 högskolepoäng

Ladok Code: C2MM1C
Version: 1.0
Established by: Committee for Education in Librarianship, Information, and IT 2023-09-19
Valid from: Autumn 2023

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Informatics (A1N)
Disciplinary Domain: Natural sciences
Prerequisites: 120 credits
Subject Area: Informatics/Computer and Systems Sciences
Grading Scale: Fail (U) or Pass (G)

Content

Cloud computing is a fundamental shift in delivering digital services to IT-based business organisations. In this context the term migration refers both to development of new IT systems utilizing cloud computing, and to changes in existing IT systems which entails new use of cloud computing. A critical factor when migrating systems, workload, and data to cloud platforms is to ensure the availability of services, in accordance with organisational requirements, such as security and performance. This course covers frameworks, approaches, and plans suitable to migrate existing systems to cloud platforms or develop new cloud native systems.

In detail, the course includes the following contents:

- Overview of cloud services
- Approaches for analysing and evaluating cloud services
- State-of-the-art methods and frameworks for implementing the next generation of software systems leveraging cloud services.

The course will give opportunities for students to engage with examples of cloud services and their applications in practice, thus applying the theoretical framework in the course: The course also emphasises analysis and reflection on the use of cloud services from professional, societal, and ethical perspectives.

Learning Outcomes

Upon completion of the course, the student should be able to demonstrate:

Knowledge and understanding
1.1 Describe the key principles of cloud computing technologies
1.2 Explain the critical socio-technical factors in adopting cloud services in business enterprise systems
1.3 Describe tools, APIs, and technologies that support different service delivery models via cloud services
1.4 Explain theories, methods and strategies in relation to decision support, innovation, and service selection, for cloud service selection or adoption.

Competence and skills
2.1. Critically assess issues around migrating business enterprise legacy systems and data to cloud computing platforms.
2.2. Analyse the decision-making frameworks and critical factors leading the utilisation of cloud services and the development of new cloud native systems.
2.3. Articulate how frameworks and decision-making processes can be used to effectively plan and help organisations migrate their systems to cloud platforms.
2.4. Design custom specific decision-making frameworks for a given cloud adoption scenario based on business enterprise

requirements.

Judgment and approach
3.1. Review and evaluate frameworks and critical success factors in migrating business systems to cloud computing platforms.
3.2. Choose and argue for a migration plan in relation to migrating legacy systems to cloud platforms.

Forms of Teaching

Instruction consists of lectures, seminars and tutoring.

The language of instruction is English.

Forms of Examination

The course will be examined through the following examination elements:

Written assignment: Develop a plan to adopt cloud services
Learning outcomes: 1.1-1.4, 2.1-2.4, 3.1-3.2
Credits: 4.5
Gradingscale: Fail (U) or Pass (G)

Seminar: Presentation and discussion of written assignment
Learning outcomes: 1.1-1.4, 2.1-2.4, 3.1-3.2
Credits: 0.5
Gradingscale: Fail (U) or Pass (G)

To receive a passing grade for the entire course, a passing grade is required for all examination components.

The examiner may decide to replace the seminar with another suitable form of examination if the student has failed or not participated in this component during the course.

If the student has received a decision/recommendation regarding special pedagogical support from the University of Borås due to disability or special needs, the examiner has the right to make accommodations when it comes to examination. The examiner must, based on the objectives of the course syllabus, determine whether the examination can be adapted in accordance with the decision/recommendation.

Student rights and obligations at examination are in accordance with guidelines and rules for
the University of Borås.

Literature and Other Teaching Materials

The course literature is mainly in English, but articles in Swedish may be added.

Bhattacherjee, A. & Park, S. C. (2014). Why end-users move to the cloud: a migration-theoretic analysis. European Journal of Information Systems, 23(3), ss. 357-372

Fahmideh, M., Daneshgar, F., Beydoun, G. & Rabhi, F. (2017). Challenges in migrating legacy software systems to the cloud: an empirical study. Information Systems, 67, ss. 100-113.

Fahmideh, M. & Beydoun, G. (2018). Reusing empirical knowledge during cloud computing adoption. Journal of Systems and Software, 138, ss. 124-157.

Foster, I., Zhao, Y., Raicu, I. & Lu, S. (2008). Cloud computing and grid computing 360-degree compared. I Grid Computing Environments Workshop, IEEE, ss. 1-10.

Khajeh-Hosseini, A., Greenwood, D. & Sommerville, I. (2010). Cloud Migration: A Case Study of migrating an enterprise IT System to IaaS. I 2010 IEEE 3rd International Conference on Cloud Computing (CLOUD), 5-10 juli 2010, ss. 450-457. doi: 10.1109/CLOUD.2010.37

Rajkumar, B. et al. (2009). Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility. Future Generation computer systems, 25(6), ss. 599-616.

Zissis, D. & Lekkas, D. (2012). Addressing cloud computing security issues. Future Generation computer systems, 28(3), ss. 583-592.

In addition to the references above, additional teacher-selected articles of a maximum of 100 pages can be provided during the course or sought out by the students themselves

Student Influence and Evaluation

The course is evaluated in accordance with current guidelines for course evaluations at the University of Borås in which students' views are to be gathered. The course evaluation report is published and returned to participating and prospective students in accordance with the above-mentioned guidelines, and will be taken into consideration in the future development of courses and education programmes. Course coordinators are responsible for ensuring that the evaluations are conducted as described above.

Miscellaneous

The course is offered as a freestanding course.

This syllabus is a translation from the Swedish original.