|  |  |  |
| --- | --- | --- |
| **Identification** | **Subject**  | Distributed systems 3 credits  |
| **Department** | Computer Science |
| **Program** | Undergraduate |
| **Term** | Autumn, 2017 |
| **Instructor** | PhD, Engineering science Farman Mammadov |
| **E-mail:** | **farman.mammadov@khazar.org****fnovruzoglu@yahoo.com** |
| **Phone:** | (+994 12) 421-10-93 (ext. 255) |
| **Classroom/hours** | 41 Mehseti str. (Neftchilar campus), Room # , Monday , Friday 18:00-20:30 |
|  | **Office hours** | Monday, Friday 17:00 – 18:00 or by appointment |
| **Prerequisites** | Information measurement and management systems, C Programming Language |
| **Language**  | English |
| **Compulsory/Elective** | Required |
| **Required textbooks and course materials** | ***Core textbook: Text book 1*****DISTRIBUTED SYSTEMS, Concepts and Design****Fifth Edition, George Coulouris, *Cambridge University,* Jean Dollimore, Copyright © 2012, 2005, 2001, 1994, 1988 Pearson Education, Inc., publishing as Addison-Wesley*****Text book 2*****Notes on Theory of Distributed Systems****CPSC 465/565: Spring 2016, James Aspnes,** **2016-06-15 15:39**  |
| **Course website** | This course combines traditional face-to-face classes with online learning. The course management platform Moodle is used to provide a wide range of resources to support learning. And all course related materials including, but not limited to, syllabus, supplementary readings, course announcements, cases and assignments are available **only** at the course website <http://www.khazar.org/moodle>. Grades will also be posted on Moodle. The students are expected to check it in a regular basis and communicate with the lecturer only via Moodle. |
| **Course outline** | This course provides an introduction to the basic concepts of Distributed systems. The course combines theoretical foundations with practical applications using different tools and techniques. Topics include Distributed systems developments and applications of Distributed systems. |
| **Course objectives**  | *Generic Objective of the Course:*To develop an understanding of the basic concepts of Distributed systems circuits and system design methodology. *Specific Objectives of the Course:** To introduce the ideas of Distributed systems
* To familiarize with historical development of Distributed systems ;
* To introduce basics of genetic algorithms and their applications in optimization and planning;
* To introduce students tools and techniques of design of Distributed systems ;
* To develop skills thorough understanding of the theoretical and practical aspects of Distributed systems
 |
| **Learning outcomes** | After studying this course the student should be able to :* Understand the need for Distributed systems;
* Understand different uses of Distributed systems in various areas;
* Understand the steps involved in the development of Distributed systems;
* Acquire a working knowledge of some popular tools for Distributed systems
* Design, implement and Distributed systems by using appropriate Distributed systems design techniques and tools.
 |
| **Teaching methods** | **Lecture**  | x |
| **Group discussion** | x |
| **Experiential exercise** | x |
| **Simulation** | x |
| **Case analysis** |  |
| **Course paper** | x |
| **Others** |  |
| **Evaluation**  | **Methods** | **Date/deadlines** | **Percentage (%)** |
| **Midterm Exam** |  | **25** |
| **Case studies** |  |  |
| **Class Participation** |  |  |
| **Abstract**  |  | **20** |
| **Project** |  |  |
| **Presentation** |  | **20** |
| **Final Exam** |  | **35** |
| **Others** |  |  |
| **Total**  |  | **100** |
| **Tentative Schedule** |

This syllabus is a guide for the course and any modifications to it will be announced in advance.

## The syllabus reflecting full info Optical signals and systems subject and it could be changed.

**Distributed systems**

## Assignments/Grading

The course will be graded on an absolute scale, with a total of 100 possible points partitioned as: 20 points from Abstract paper presentation, 20 points from presentation Project, 25%Midterm Examination and 35% points from Final Examination.

## Grading Scale

90% - 100%: A

80% - 89%: B

70% - 79%: C

60% - 69%: D

00% - 59%: R

|  |  |  |  |
| --- | --- | --- | --- |
| **Weeks****#** | **Start Date** | **Subjects /actions** | *Notes* |
|  | Sept. 16  | Logistics |  |
| 1 | Sept. 23 | Introduction to Distributed Systems |  Book 1 pages 1-16 |
| 2 | Sept 30 | Distributed system (DS) models | Book 1 pages 38-40, 61 |
| 3 | Oct 7 | Networking and Internet working on DS.  | *Book 1 pages 82-89**Book 1, pages 106* |
| 5 | Oct 14 | Inter-process communications | *Book 1 pages 146-158, 169* |
| 5 | Oct 21 | Remote invocation  | *Book 1 pages 186-195, 204* |
| 6 | Oct. 28 | Indirect communication | *Book 1 pages 230-242,* *Book 1, page 254* |
| 7 |  Nov 04 | Operating system on DS  | *Book 1 pages 280-286,* |
|  |  | **Presentations Project** | ***MAX SCORE 20%*** |
| 8 | Nov 11 | Operating system architecture  | *Book 1 pages 280-286,* |
| 9 | Nov. 18 | Distributed objects and components | *Book 1, pages 336-340, 358* |
|  |  | ***MIDTERM*** | ***MAX SCORE 25%*** |
| 10 | Nov. 25 | WEB services | *Book 1, pages 384, 400-411* |
| 11 | Dec. 2 | Peer to Peer system | *Book 1, pages 430-436* |
| 12 | Dec. 9 | Security  | *Book 1, pages 472-484, 493* |
| 13 | Dec.16 | Distributed file systems  | *Book 1, pages 530-536* |
| 14 | Dec. 23 | Name Services | *Book 1, pages 569-584* |
|  |  | ***Paper presentation Abstract*** | ***MAX SCORE 20%*** |
| 15 | Dec. 30 | Time and Global states | *Book 1, pages 597-599,* *607-619* |
| 16 |  | Coordination and agreement | *Book 1, pages 633, 646,*  |
| 17 |  | Transactions and concurrency control  | *Book 1, pages 679, 692, 707* |
| 18 | A | Distributed transactions | *Book 1, pages 728, 731, 740, 743, 751* |
|  |  | Course Summary and Exam Preparation |  |
|  |  | Final exam preparation  |  |
|  |  | ***Final Exam Date TBA*** | ***Max 35% score*** |

##