ECE 321
Software Requirements Engineering

LAB 1. Introduction

Lab Instructor: Ahmed Chaari
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Basic Information

Laboratory Instructor

- Ahmed Chaari
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- Office Hours: TBA

Teaching Assistant

- Mahsa Panahandeh
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- Office Hours: TBA

Laboratories

- Mon, 14:00 - 16:50 pm, ETLC 5-005

Class web site

- https://eclass.srv.ualberta.ca

Planned Topics

The course will provide background that concerns development, specification, and verification of software requirements.

The lab will be used to reinforce the knowledge you will gain during lectures

- **three main parts:**
  1. **readings at the beginning of the semester**
     - **1 lab: today**
     - **will give you industrial and research perspective on the software requirements subject**
     - **in the meantime the lectures will focus on building up background for the remaining labs**

Planned Topics

- three main parts:
  2. elicitation of requirements and requirement specifications
     - 4 labs: LAB2 + LAB3 + LAB4 + LAB5
     - training in elicitation methods and supporting software
       - » Gatherspace
     - development of the requirement specification document
  3. formal requirements methods
     - 3 labs: LAB6 + LAB7 + LAB8
     - learning formal methodologies and supporting software
       - » Finite State Machines and Petri Nets

Group Effort

During the labs you will be working mostly in groups

- **5 groups of 3-4 people (we will divide into groups today)**
  - **total of 47 registered students**
- **total 30%**
  - **5 lab reports for 3% each**
    - **all except two are finished during the lab**
  - **final project (SRS document) for 15%**
    - **complete SRS document using IEEE 830 standard**
- **Everyone in the same group gets the same mark**
  - **cooperate**

Schedule

LAB1	Introduction	
LAB2	Requirements Elicitation - Interview	Report 1 assigned (interview notes)
LAB3	Software Supported Elicitation and Specification of Requirements - demo of GatherSpace	Report 1 due
LAB4	Requirements Elicitation - Use Cases with GatherSpace	Report 2 assigned (use cases and review notes in GatherSpace)
LAB5	IEEE 830 SRS Standard	Report 2 due Group Projects (SRS document) assigned (due at the final exam)
LAB6	Finite State Machines	Report 3 assigned and due (FSM models)
LAB7	Introduction to Petri Nets – introduction to PIPE	Report 4 assigned and due (PIPE models)
LAB8	Petri Nets	Report 5 assigned and due (advanced PIPE models)

Instructor reserves the right to change the lab outline, based on students' progress and coverage of the material.

LAB 1

Today

- establishing 5 groups
  - 4 undergrad students per group
  - 3 grad students per group
  - each group must nominate a team leader
  - write the names on a piece of paper

  - first group task is an interview during LAB2 on Sept. 24

LAB 1 Homework

Reading assignment

- read the following two articles after the lab

Maiden, N., Requirements 25 Years On, *IEEE Software*, pp.26-28, Nov/Dec 2008

Wever, A., Maiden, N., Requirements Analysis: The Next Generation, *IEEE Software*, pp.22-23, Mar/Apr 2011

available on class web site under "Reading assignment"

reading is voluntary and will not be marked

do not post them anywhere else

LAB 2

Requirements elicitation

- we will train interviewing technique discussed during the lectures
  - the software system that will be modeled in the remaining two assignments will be discussed
    - traffic lights system
  - main task will be to perform interview to learn about the system to be developed
    - based on the review each student group will develop system definition
      - » template will be described during lectures
    - each group will submit one page summary of the elicited information

LAB 3

Requirements elicitation

- **demo of GatherSpace software**
- **each group will enter the information elicited during the previous lab using this software**

LAB 4

Requirements elicitation

- each group will develop use cases for the elicited during the LAB3 system
  - system's definition will be refined and analyzed
  - use cases will be developed
    - each group will submit a set of all uses cases based on the elicited information
    - use cases will be entered into GatherSpace

LAB 5

IEEE Standard 830: Software Requirements Specifications

- **we will learn the standard**
- **we will also discuss an example industrial requirement specification developed using the standard**
- **each group will develop the specification for the traffic lights system**
  - **you will structure the information about the system defined during LABS 2, 3 and 4 as a formal document using the IEEE template**
  - **the specification will be due at the end of the term (Project report)**

LAB 6

Finite State Machines

- we will model real life systems using FSMs
  - telephone model
  - cruise control system model

LAB 7 and LAB 8

Petri Nets

- **during LAB 7 we will work on a tutorial-style demo of Petri Nets software**
- **during LAB 8 we will model real life system**
  - **cruise control system model**

- **Lecture assignment 4 will concern modeling in Petri Nets**
  - **traffic light system**