Welcome to SENG 321

Requirements Engineering

Let's make this an engaging course

SENG 321

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University of Victoria

http://www.engr.uvic.ca/~seng321/
https://courses1.csc.uvic.ca/courses/201/spring/seng/321

Announcements

- New class room as of Wed
  - MAC 288 (original one)

- Midterm rescheduled due to lab clash
  - Fri, Feb 26 in class

- Course website updated

- Assignments/Deliverables
  - S0, C0, S1, C1 specs posted
  - Group website spec posted
  - www.engr.uvic.ca/~seng321/deliverables.html

- Projects and groups
  - www.engr.uvic.ca/~seng321/project.html
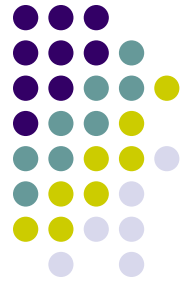
SENG 321 Calendar

First day of classes	Tue, Jan 5
Labs begin	Tue, Jan 12
Reading break	Feb 8-12
Midterm	Fri, Feb 26
Easter break	Mar 25-28
Project presentations	Mar 29-31
Last day of classes	Fri, Mar 31

Detailed course calendar: deliverables deadlines
http://www.engr.uvic.ca/~seng321/calendar.html

Students must participate in all project presentations in class & labs
**No show results in a 25% reduction in the mark for that presentation**
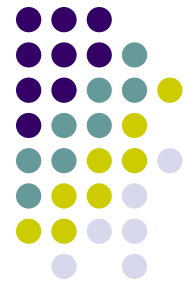
Project Deadlines and Marks

#			
1.	Call for Project Proposals		6 Jan (Class)
2.	Request for Proposal (RFP)		8 Jan
3.	Project selection		12 Jan (Lab)
4.	Team selection		14 Jan (Lab)
5.	Related work (S0)	5%	22 Jan (Lab)
6.	Project website up and running	5%	26 Jan (Lab)
7.	RFP2 Informal Requirements Specification (C0)	5%	29 Jan (Lab)
8.	Formal Requirements Spec (S1)	10%	16 Feb (Lab)
9.	Customer Feedback on S1 (C1)	5%	18 Feb (Lab)
10.	Detailed Requirements Spec (S2a)	10%	1 Mar (Lab)
11.	Prototype demo (S2b)	5%	3 Mar (Lab)
12.	Customer Feedback on S2a-b (C2)	5%	8 Mar (Lab)
13.	Final Requirements Spec (S3a)	15%	15 Mar (Lab)
14.	User Manual (S3b)	10%	22 Mar (Lab)
15.	Customer Feedback on S3a-b (C3)	5%	24 Mar (Lab)
16.	Demo Final Project (S4)	10%	29,31 Mar (Lab)
17.	Customer Feedback on S4 (C4)	5%	29,31 Mar (Lab)
18.	Instructor and TA Evaluations (S5)	5%	1 Apr

4
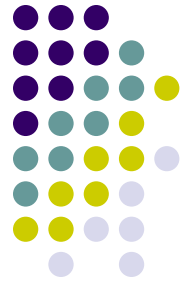
News

HOME

COURSE OUTLINES

LAB PAGES

NEWS

CALENDAR

RESOURCES

LECTURES

PROJECTS

DELIVERABLES

MARKS

CONTACT

N e w s

- Labs in ELW for week of Jan 18
- Midterm rescheduled for Fri, Feb 26 in class
- Instructions for S0, C0, S1, C1 and group website posted (doc, pdf)
- Calendar updated, Tue, Jan 19
- RFP template posted (doc, pdf), due Jan 8, 1:00 pm
- Calendar posted, Wed, Jan 6
- Lecture notes posted
- Website up and running
- New class room in ELL 167
- Labs will start the week of Jan 12, 2016
- First Day of Classes Jan 5, 2016

Projects

Car Wash

GPS Enabled Text-Adventure RPG

Meals for the Moment

Shower Management System

Course Schedule Creator

Good Morning: Wake up smarter

SERVEitude!

Location & Time Based Restaurant Specials

EventCity--The best Queueing System

Lumin

ELW Locker Reservation System

Hire

Opportunity App

Smart Beverage Dispensing System

Mobile Lighting Control System

Groups

1. Trevor Baker

2. Tal Melamed

3. Felicity Rhone

4. Justyn Houle

5. Rhiannon Tully-Barr

6. Ben Hawker

7. Chris Kelly

8. Heather Cape

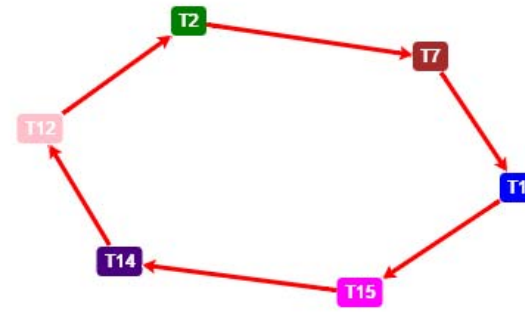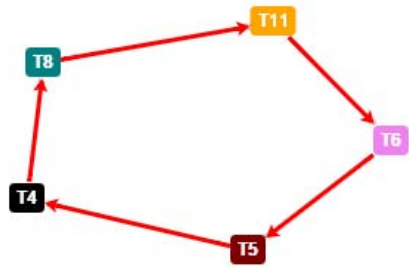9. Jose Javier Gordillo

10. Jake Runzer

11. Graeme Bates
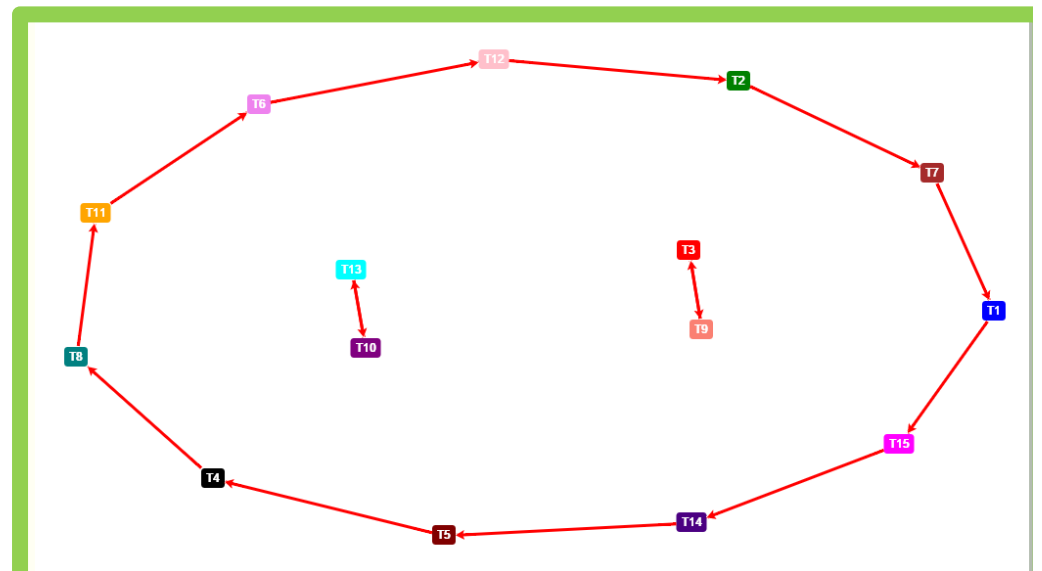
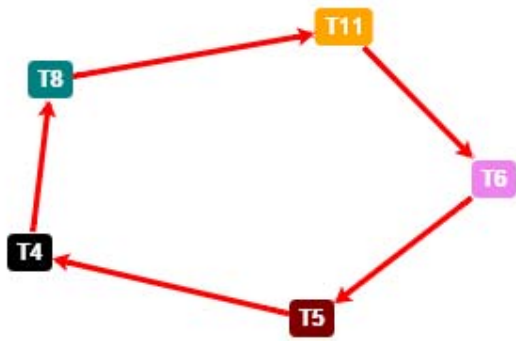12. Braydon Arthur

13. Brian Pattie

14. Brendan Heal

15. Jeremy Krenbrink

Proposed New Group Structure

LAB 215
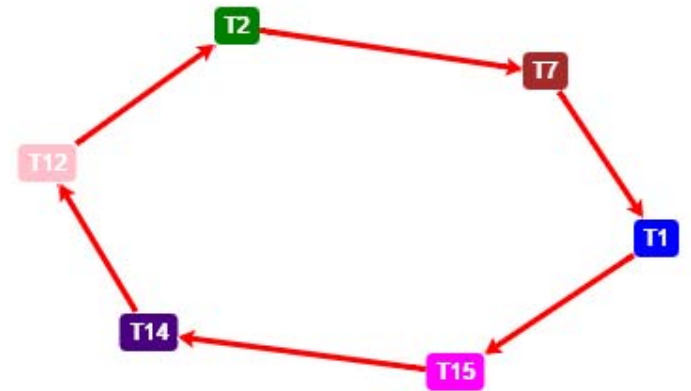
LAB 220

Deliverables
S0, C0, S1, C1, Website

HOME	**Assignments**
COURSE OUTLINES	
LAB PAGES	Instructions for S0, C0, S1, C1 and group website posted (doc, pdf)
NEWS	
CALENDAR	
RESOURCES	RFP template posted (doc, pdf)
LECTURES	
PROJECTS	
DELIVERABLES	
MARKS	
CONTACT	

Supplier Deliverable S0—Review of Related Products and Projects

Length

Two pages

Description

Now that you are linked to a customer who is interested in a specific product, it is time to do some home work before the customer provides you with a detailed specification.

This orientation assignment is to familiarize you with products and projects developed by other companies related to your selected RFP. Conduct some research on the web on the topic at hand and what related products are out there. How can you set your product apart from what is out there? You know that your customer will issue a detailed RFP shortly. You need to be able to respond to this RFP effectively and thus need to understand the topic at hand, the competition out there, and the technologies involved. How can you argue to your own company executives that you will be able to execute and deliver on this RFP?

It is imperative that every group member immerses himself or herself in the topic of your project.

Talk about preliminary project member roles and preliminary work assignments in the lab. Each project member must contribute significantly to the project. Try to understand each others' expertise and skills. Take advantage and leverage individual skills in your project.

Customer Deliverable C0—Detailed Request for Proposals (RFP2)

Length
The starting point is your existing RFP from the project selection phase, which uses the template provided on the lab website. No more than eight pages, including a polished *Executive Summary*.

Description
This document should detail the *informal customer requirements*. This document should state the scope of the project, everything that the customer expects the system to do. Make sure the project is suitable for completion in one term. Remember that this is not a competition; do not aim to make life difficult for the supplier but provide a sound and reasonable RFP. Marks will be deducted for a project is considered too easy or too difficult. Include a stellar *Executive Summary*, 0.5-1.0 page long, listing project objectives, needs, and requirements in point form. Use the original RFP template provided on the lab website.

Supplier Deliverable S1—Functional Specification and Management Plan

Length

No more than fifteen pages, including *Executive Summary*.

Description

- S1 must address the client RFP2 (C0).
    - This should explain what you are going to do for your project as opposed to how you will accomplish it.
    - When writing this, do not assume that your customer has any deep knowledge of computer science.
    - Cost estimation is not required.
- Functional specifications
    - The functional specification should include a title page having the title of your project; the name of your group or company (which you can invent); the people who contributed to the document, including authors of individual sections and editor of the whole paper (e.g., outside consultants); and the date.
    - In about two pages you should summarize the project you are working on.
    - Give your system a name and describe what it does and who will use it.
    - What needs and objectives will the project satisfy?
    - How will it help the users?
    - Outline the most important features of your system.
    - Describe the hardware your system will use, and any important performance goals that it should satisfy (e.g., time or space efficiency, security, or reliability).
- User interaction
    - The next section of about seven or eight pages concerns the user interaction and will form the basis of your user manual to be delivered towards the end of the course.
    - It should describe the function that the system will perform from the point of view of the user. Cover the kinds of inputs your system expects, the actions it will take on both expected and unexpected input data; the types of outputs the user will see in those cases. Marks will be deducted for a poor user interface regardless of the opinion of the customers.
    - Include several sample transcripts of the interaction with your system in the form of a dialogue.
    - Include a glossary of all specialized terms used in the document, either computer science terms that the programmer may not know, or terms from the field in which you are working.
    - Context and situation awareness.

- Management plan
  - The management plan of about five pages should include a breakdown of the different features of the project, the major classes of functions and the relationship between them.
  - It should also include a page or so discussing possible implementations.
  - Make sure that you do not give the impression that you are promising more than you intend to deliver.
  - Cover yourself by including a page on a minimal system that you think you can complete by the end of term, and the enhancements you could include if all goes well.
  - Finish with a summary restating the main points you want the customer to remember, then include a page on the structure of your team and who will be responsible for which parts of the project.

Customer Deliverable C1—Evaluation of Functional Specification and Management Plan

This is to be assessed and evaluated against actual objectives, needs, and requirements. Make sure that you are satisfied at this stage that your supplier is aiming to meet your specification outlined in the request for proposal. Mark clearly, in italic or bold type on the supplier's document, any comments or amendments on the document. Ideally use Acrobat PDF annotation technology.

You may add up to two additional pages. Do not add any new requirements at this stage, or make the project larger.

Group Website

Each group maintains a website with two components:

    (1) supplier/developer

    (2) client/customer.

Supplier/developer website component

This should be a (start-up) company website including company name, company logo, employees, and materials to attract customers. The website must be attractive (e.g., a page on each employee including interests and skills; goals of the company; …). The website can evolve over time. All group members must contribute contents to the website.

http://www.onextrapixel.com/2014/08/07/16-great-startups-with-stunning-website-designs/

https://onepagelove.com/gallery/startup

http://www.inc.com/drew-hendricks/50-websites-your-startup-needs-to-succeed-in-2015.html

All the S* deliverables must be posted on this site.

Client/customer website component

This website does not have to be attractive and simply hosts the C* deliverables.
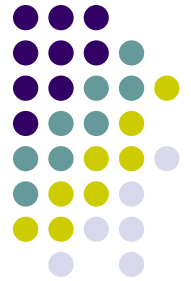
Goals for this week

- Company name
- Group members
- Project title
- Project abstract
- For each group
  - Preliminary supplier website with this info
  - Preliminary customer website

Finalize in
lab sessions

Selected Project Member Roles

Determine who best fits these roles—allowed to change as the term progresses

1. Project lead—leadership, management, communications, & negotiation skills
2. Documentation writer—writing, presentation, marketing & sales skills
3. Webmaster—website development, web tool & presentation skills
4. Toolsmith—tool experience & programming skills
5. Design expert—UML diagramming & object-oriented design skills
6. Interface expert—user interface programming & presentation skills
7. Analyst—analysis, verification, traceability, testing & reviewing skills

Working in Groups and Choosing a Group
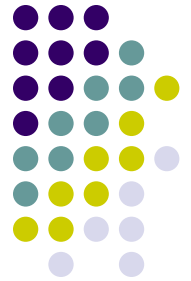
- Group Size: 4

- Understand the work habits and goals of your group members:

■ Night person	■ Morning person
■ Start early	■ Start at last minute
■ Laid back	■ Perfectionist
■ Best project ever	■ Reasonable mark

- Identify members with good English and communication skills
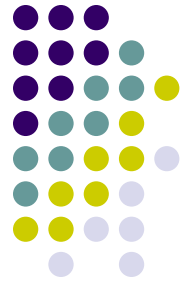
Project Skills Elicitation

Your name	Muller					
Project lead	X					
Documentation	X					
Webmaster						
Toolsmith						
Designer (UML)						
HCI expert	X					

- Check three (3) skills
  - *Project lead*—leadership, management, communications & negotiation skills
  - *Documentation writer*—writing, presentation, marketing & sales skills
  - *Webmaster*—website development, web tool & presentation skills
  - *Toolsmith*—tool experience & programming skills
  - *Design experts*—UML diagramming & object-oriented design skills
  - *Interface expert*—user interface programming & presentation skills
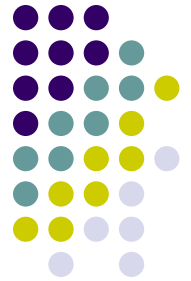
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Project Leads and Skills Elicitation
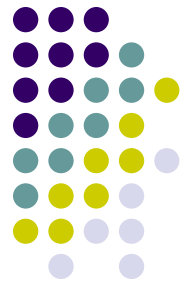
Questions?

Suggested consultation order:

- Project group
- Course web page
- Lab instructor
- Instructor

Requirement Engineering

- The hardest single part of building a software system is *deciding precisely what to build*. No other part of the conceptual work is as difficult as establishing the detailed technical requirements, including all the interfaces to people, to machines, and to other software systems. No other part of the work so cripples the resulting system if done wrong. No other part is more difficult to rectify later.

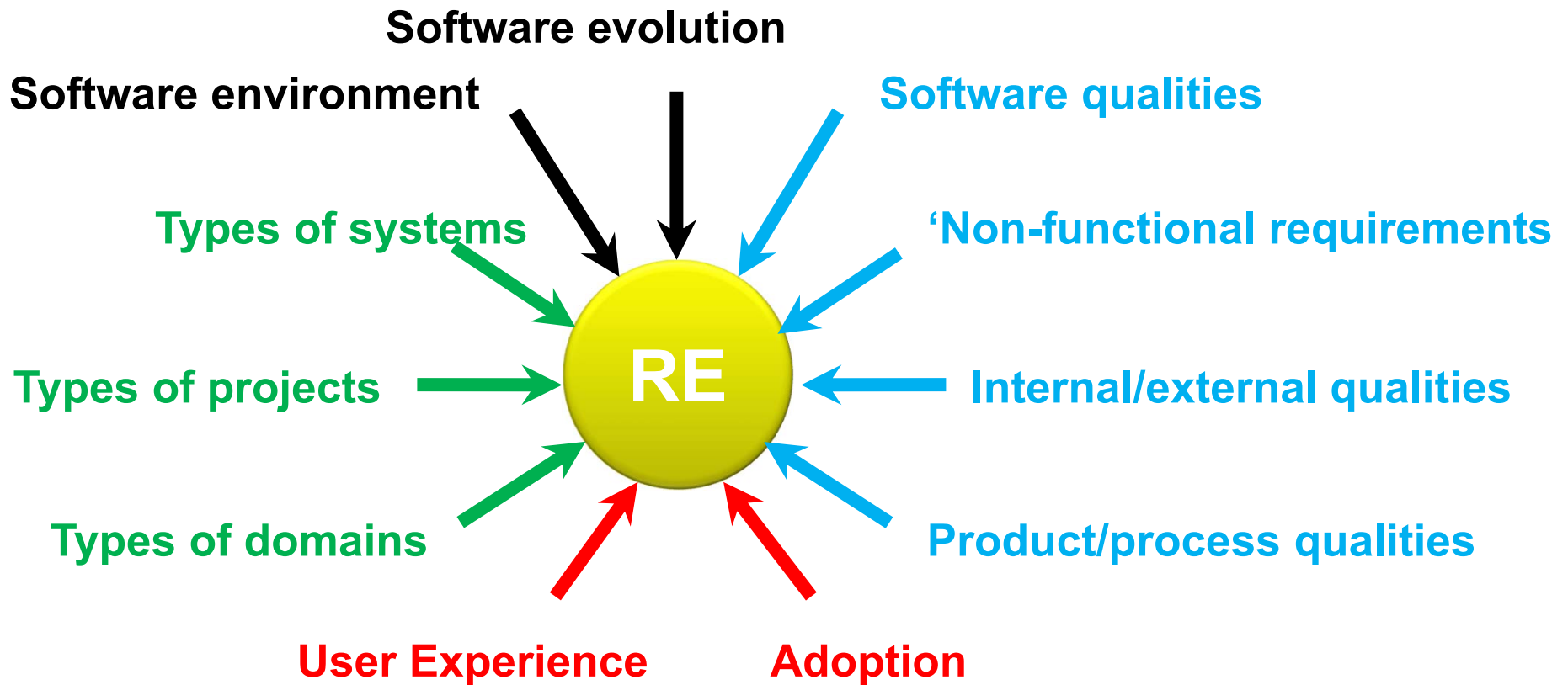[Fred Brooks, "No Silver Bullet", IEEE Computer,1987]

Software Requirements Engineering
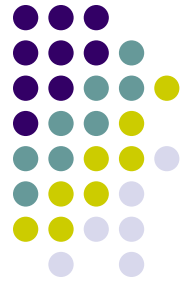
- The hardest single part of building a software system is deciding precisely what to build

- How do we decide what system to build?

- Software problems tend to be complex

- Contrast the design documents for a bicycle or a bridge to the design documents for an self-adaptive or self-managing software system

Requirements Engineering
Many Forces at Work

Software evolution

Software environment

Software qualities

Types of systems

'Non-functional requirements

Types of projects

RE

Internal/external qualities

Types of domains

Product/process qualities

User Experience

Adoption

Separation of Concerns

Problem Domain
-
Analysis

Interface
-
Specification

Solution
-
Design