

# CS3382: WEB USABILITY DESIGN AND ENGINEERING

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## Effective Term

Semester A 2025/26

## Part I Course Overview

### Course Title

Web Usability Design and Engineering

### Subject Code

CS - Computer Science

### Course Number

3382

### Academic Unit

Computer Science (CS)

### College/School

College of Computing (CC)

### Course Duration

One Semester

### Credit Units

3

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

(CS1303 Introduction to Internet and Programming or  
CS2204 Fundamentals of Internet Applications Development, or equivalent)  
AND  
(CS2310 Computer Programming or  
CS2311 Computer Programming or  
CS2312 Problem Solving and Programming or  
CS2313 Computer Programming or  
CS2360 Java Programming, or equivalent)

### Equivalent Courses

Nil

**Exclusive Courses**

Nil

**Part II Course Details****Abstract**

This course aims to provide students with a balance of design and engineering concepts, principles and professional practices related to Web site design and usability. It also aims to develop students' ability to design, create, and analyse Web sites for usability and accessibility.

**Course Intended Learning Outcomes (CILOs)**

| CILOs |                                                                                                                                         | Weighting (if DEC-A1 app.) |   | DEC-A2 | DEC-A3 |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---|--------|--------|
| 1     | Design a web site using established process models and professional practices.                                                          |                            | x | x      |        |
| 2     | Create, design and implement a Web site by applying sound design principles and professional practices for usability and accessibility. |                            | x | x      |        |
| 3     | Conduct usability testing or use other techniques and tools to improve Web usability.                                                   |                            |   | x      |        |
| 4     | Explain and Critique new technologies and trends in Web usability engineering.                                                          |                            | x |        |        |

**A1: Attitude**

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

**A2: Ability**

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

**A3: Accomplishments**

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

**Learning and Teaching Activities (LTAs)**

| LTAs |                      | Brief Description                                                                                  | CILO No.   | Hours/week (if applicable)                                |
|------|----------------------|----------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------|
| 1    | Lecture and Tutorial | Students will engage in lectures that explain key concepts, such as principles in Web site design. | 1, 2, 3, 4 | Lecture:<br>3 hours/week<br>Tutorial:<br>8 hours/semester |

|   |                   |                                                                                                                                                                                                                                                                                                                                           |            |  |
|---|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--|
| 2 | Journal or report | Students are expected to do a fair amount of reading both within and outside of the textbooks. They are required to document in a journal or report their learning and insights of Web site design, usability and accessibility professional practices.                                                                                   | 1, 2, 3, 4 |  |
| 3 | Presentation      | Students are required to give presentations in class and discuss their findings. The teacher will guide discussions and help focus issues.                                                                                                                                                                                                | 1, 2, 3, 4 |  |
| 4 | Mini-project      | Each student will be required to select an existing Web site and critically analyse its usability and accessibility. They will create a new design of a simple Web site following professional practices, guidelines and standards in Web design, usability and accessibility. The mini-project should be documented in a project report. | 1, 2, 3, 4 |  |

**Assessment Tasks / Activities (ATs)**

| ATs |                               | CILO No.   | Weighting (%) | Remarks ("- for nil entry) | Allow Use of GenAI? |
|-----|-------------------------------|------------|---------------|----------------------------|---------------------|
| 1   | Journal or Report Write-up    | 4          | 20            | -                          | Yes                 |
| 2   | Mini-project and Presentation | 1, 2, 3, 4 | 40            | -                          | Yes                 |

**Continuous Assessment (%)**

60

**Examination (%)**

40

**Examination Duration (Hours)**

2

**Minimum Examination Passing Requirement (%)**

30

**Additional Information for ATs**

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

### **Assessment Rubrics (AR)**

#### **Assessment Task**

Analysis Report Write-up

#### **Criterion**

1.1 ABILITY to study and clearly document findings of Web site design principles and professional practices

#### **Excellent (A+, A, A-)**

High

#### **Good (B+, B, B-)**

Significant

#### **Fair (C+, C, C-)**

Moderate

#### **Marginal (D)**

Basic

#### **Failure (F)**

Not even reaching marginal levels

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#### **Assessment Task**

Mini-project and Presentation

#### **Criterion**

2.1 ABILITY to create, design and implement a Web site by applying sound design principles and professional practices for usability and accessibility

#### **Excellent (A+, A, A-)**

High

#### **Good (B+, B, B-)**

Significant

#### **Fair (C+, C, C-)**

Moderate

#### **Marginal (D)**

Basic

#### **Failure (F)**

Not even reaching marginal levels

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#### **Assessment Task**

Mini-project and Presentation

#### **Criterion**

2.2 ABILITY to organize and clearly present the techniques used in the mini-project to improve Web usability

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not even reaching marginal levels

## Part III Other Information

**Keyword Syllabus**

Web site development methodologies. Web site usability and accessibility. Web standards. XHTML/CSS. Design principles and style guidelines. Information architecture. Graphic design and layout. Usability testing. Search engine optimization. Web site analytics. New Web technologies and trends.

**Syllabus**

- Web site development methodologies  
Web site development life cycle. User-centric design model. Process models. Core process workflow.
- Web standards for usability and accessibility  
XHTML. CSS. WAI/Section 508.
- Design principles and guidelines for the Web  
Basic Web design principles. Web style guidelines. Basic graphic layout: fonts, colors, etc. Usability and accessibility guidelines. Professional practices for Web design.
- Usability testing, techniques and tools  
Usability testing procedures. Analysis of test results. Search engine optimization. Web analytics.
- New technologies and trends  
Web 2.0. Web 3.0.

**Reading List****Compulsory Readings**

| Title |     |
|-------|-----|
| 1     | Nil |

**Additional Readings**

| Title |                                                                                                                                                |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Rush, S. (2015). Quantum Web Accessibility: Organizational Awareness, Alignment, and Realization. Taylor & Francis Group. ISBN 978-1138808676. |
| 2     | Horton, S., and Quesenberry W. (2014). A Web for Everyone: Designing Accessible User Experiences. Rosenfeld Media. ISBN 978-1933820972.        |
| 3     | Pickering, H. (2014). Apps For All: Coding Accessible Web Interfaces. Smashing Magazine. ISBN 978-3944540795.                                  |
| 4     | Krug, S. (2014). Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability (3rd Edition). New Riders. ISBN 978-0321965516.      |
| 5     | Connor, J.O. (2012). Pro HTML5 Accessibility: Building an Inclusive Web. Apress. ISBN 978-1430241942.                                          |

|   |                                                                                                                                               |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | Chisholm, W., and May, M. (2008). Universal Design for Web Applications: Web Applications That Reach Everyone. O'Reilly. ISBN 978-0596518738. |
| 7 | Pearrow, M. (2006). Web Usability Handbook (2nd Edition). Charles River Media. ISBN 978-1584504696.                                           |