Course Outline

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Course Details

Course Code	COMP4511
Course Title	User Interface Design and Construction
Convenor	Aaron Quigley (/users/z3531716)
Admin	Aaron Quigley (/users/z3531716)
Classes	**Monday 2-4pm and Thursday 11-1pm (please follow the link to course lectures below)** **http://timetable.unsw.edu.au/2021/COMP4511.html (http://timetable.unsw.edu.au/2021/COMP4511.html)** (/COMP4511/21T3/timetable)
Consultations	Please use the forums here WEB cms for questions.
Units of Credit	6
Course Lectures	https://moodle.telt.unsw.edu.au/course/view.php?id=62463 (https://moodle.telt.unsw.edu.au/course/view.php?id=62463) (access Moodle and continue to blackboard collaborate please)
Handbook Entry	http://www.handbook.unsw.edu.au/undergraduate/courses/current/COMP4511.html (http://www.handbook.unsw.edu.au/undergraduate/courses/current/COMP4511.html)
Student Reps	stureps@cse.unsw.edu.au Email the stureps if you have any issues with the course. They will pass these anonymously to the relevant people to get the issues resolved.

Course Summary

COMP4511 is a hands-on project-based course designed to build and solidify the basic skills you acquired in COMP3511/9511. Students will be required to build their interface at least three times (remember the process is iterative!), once as a low fidelity prototype, moving to a higher fidelity electronic prototype and finishing with a beta version of the app. This semester, we will be using React to help us write the app. The course will provide you with a basic understanding and the building blocks required to create your app, and let you guide the design and development process.

The process doesn't start with coding, it starts with an understanding your users. You develop personas of your target audience and work through the design issues: What information are they going to be dealing with? What are the workflows? How are they going to interact with the application? What is the application going to look like?

As you learned in Human Computer Interaction, you have to conceptualise your design on paper and evaluate prototypes with users. Then you start on the design of your system, not focussing on just the code but also the object oriented design. You will build the code implementation iterating through both your object oriented design and your user interface design.

The real insights come when we usability test your application. Do your users really understand how to use your application? Does it work the way that they expect - not what you as a programmer expect. That's the challenge. What is the difference between a bug and a design flaw? Proper evaluation techniques will help you uncover both.

We teach a process that is relevant to industry. Preparing students for the real world challenges of user interface design. And face it, user interfaces are everywhere.

The process is not just about putting buttons and text on screen. COMP3511 only touched the surface of what user interface design is all about. Are you up for the challenge of designing graphical user interfaces?

COMP3511 Human Computer Interaction is a pre-requisite and you need a mark of 70 or better (you are expected to start design, prototyping and designing usability tests in the first week). You should have completed COMP2911 (http://www.cse.unsw.edu.au/~cs2911) which introduces you to object oriented techniques, UML and design patterns, with a mark of 65 or higher.

Assumed Knowledge

Before commencing this course, students should already be familiar with the basic concepts of user centred design cycle, heuristic and cognitive evaluations, paper prototyping, and usability evaluations. Additionally, you must be able to write a number of usability-based documents, including consent forms, questionnaires, usability test plans, etc. (learnt in COMP3511/9511). Students are also expected to be familiar and comfortable working with OO concepts. Because students come from a variety of backgrounds, with different knowledge bases, the assumed knowledge is not extensive. The course does, however, involve some reading that will be based on industry experience and standards.

- These are assumed to have been acquired in the courses COMP2911/COMP9021 and COMP3511/9511

Student Learning Outcomes

This course is designed to further develop student understanding about the theories and principles behind user interface design. The students are expected to undertake a semester long project, where they will gain familiarity with bothlow-and high-fidelity prototyping techniques and will also be introduced to Swift to assist with the development of a functioning prototype or an app.

After completing this course, students will be able to:

1. Prepare a project plan that is based on user-centred design principles and then carry out activities to design, evaluate and refine user interaction based on iteration.
2. Develop the skills necessary to create a user interface evaluation report (written and oral) that critiques a user interface.
3. Develop design skills, primarily using paper for rapid solutions, and consolidate individual designs to understand the importance of design decisions and the selection process.
4. Develop design skills, to construct high-fidelity prototypes based on previous paper-based design activities
5. Prepare and carry out usability walkthroughs to evaluate both paper and electronic based designs for their usability, and then create structured reports that quantify the issues discovered from evaluation activities.
6. Develop skills with React Native to implement their prototype into a functioning beta version of an app.
7. Ability to critically evaluate current research in the UX domain and apply it to projects
8. To develop an awareness of user-centred design tools, methods, and techniques and maintain a real-world perspective in order to be able to apply this knowledge in industry.

This course contributes to the development of the following graduate capabilities:

Graduate Capability	**Acquired in**
Scholars capable of independent and collaborative enquiry, rigorous in their analysis, critique and reflection, and able to innovate by applying their knowledge and skills to the solution of novel as well as routine problems	Lectures, tutorials/labs and assignments
Entrepreneurial leaders capable of initiating and embracing innovation and change, as well as engaging and enabling others to contribute to change	Lectures
Professionals capable of ethical, self- directed practice and independent lifelong learning	Labs and assignments
Global citizens who are culturally adept and capable of respecting diversity and acting in a socially just and responsible way	Lectures

Teaching Strategies

Every week, starting in Week 1 we will have lectures on Monday and Tuesday. We will use the Monday lecture to explore UX and UI methods and gain further understanding of concepts within the space. On Tuesdays, we will focus on playing with React Native and putting together some example apps. The lectures will consist of lecture material, design diary and design exercises and activities. We expect all students to engage and participate with the content, ask questions and use this time to solidify understanding of material.

Teaching Rationale

My teaching ethos has developed and matured over the past 15+ years. I first started teaching in 1995 and I have continued teaching regardless of my research, industrial, supervisory, directorial or professorial work responsibilities. The central tenet of my teaching philosophy and approach is the SECI model of learning, which I was introduced to when I first taught in Japan. This model helps me focus on student learning and my teaching as part of a continual process to be refined and reflected upon, from class to class and from year to year. This learning model has four phases and distinguishes between two different kinds of human knowledge: tacit and explicit. The phases in this model include, Socialisation (online forums, class, student to student interaction, group work, open discussion), Externalisation (books, slides, notes, code), Combination (seminar preparation, practicals, assignments, team work) and Internalisation (reflection, application, personalised learning). My job, as educator, is to construct a framework for students to combine the knowledge presented in an external form or acquired through socialisation so they can hence effectively internalise it. In order to support these

four phases, I have developed four guiding teaching principles for effective pedagogy, which include, Reflection on learning, Positive Learning Environment, Theory and Application and Grounding for life long learning.

In COMP4511 I apply SECI by first introducing theory which can be discussed in class, forum and in group work. Next, we introduce the relevant coding concepts in React Native. Students are asked to externalise what they have learned in these two parts with, code, labs and design diaries. Next, students are asked to combine this knowledge in their assignments and team work. Further reflection and learning allows for fresh internalisation of these items.

Student Conduct

The **Student Code of Conduct** (Information (https://student.unsw.edu.au/conduct) , Policy (https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf)) sets out what the University expects from students as members of the UNSW community. As well as the learning, teaching and research environment, the University aims to provide an environment that enables students to achieve their full potential and to provide an experience consistent with the University's values and guiding principles. A condition of enrolment is that students *inform themselves* of the University's rules and policies affecting them, and conduct themselves accordingly.

In particular, students have the responsibility to observe standards of equity and respect in dealing with every member of the University community. This applies to all activities on UNSW premises and all external activities related to study and research. This includes behaviour in person as well as behaviour on social media, for example Facebook groups set up for the purpose of discussing UNSW courses or course work. Behaviour that is considered in breach of the Student Code Policy as discriminatory, sexually inappropriate, bullying, harassing, invading another's privacy or causing any person to fear for their personal safety is serious misconduct and can lead to severe penalties, including suspension or exclusion from UNSW.

If you have any concerns, you may raise them with your lecturer, or approach the School Ethics Officer (mailto:ethics-officer@cse.unsw.edu.au) , Grievance Officer (mailto:grievance-officer@cse.unsw.edu.au) , or one of the student representatives.

Plagiarism is defined as (https://student.unsw.edu.au/plagiarism) using the words or ideas of others and presenting them as your own. UNSW and CSE treat plagiarism as academic misconduct, which means that it carries penalties as severe as being excluded from further study at UNSW. There are several on-line sources to help you understand what plagiarism is and how it is dealt with at UNSW:

- Plagiarism and Academic Integrity (https://student.unsw.edu.au/plagiarism)
- UNSW Plagiarism Procedure (https://www.gs.unsw.edu.au/policy/documents/plagiarismprocedure.pdf)

Make sure that you read and understand these. Ignorance is not accepted as an excuse for plagiarism. In particular, you are also responsible that your assignment files are not accessible by anyone but you by setting the correct permissions in your CSE directory and code repository, if using. Note also that plagiarism includes paying or asking another person to do a piece of work for you and then submitting it as your own work.

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.

If you haven't done so yet, please take the time to read the full text of

- UNSW's policy regarding academic honesty and plagiarism (https://student.unsw.edu.au/plagiarism)

The pages below describe the policies and procedures in more detail:

- Student Code Policy (https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf)
- Student Misconduct Procedure (https://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)
- Plagiarism Policy Statement (https://www.gs.unsw.edu.au/policy/documents/plagiarismpolicy.pdf)
- Plagiarism Procedure (https://www.gs.unsw.edu.au/policy/documents/plagiarismprocedure.pdf)

You should also read the following page which describes your rights and responsibilities in the CSE context:

- Essential Advice for CSE Students (https://www.engineering.unsw.edu.au/computer-science-engineering/about-us/organisational-structure/student-services/policies/essential-advice-for-cse-students)

Assessment

Item	Due	Marks
Design Diary	Weeks 5 and 10	25%
Individual Research and Presentation Assignment 1	Week 8	25%
Group Project	See spec for details	50%

Course Schedule

Week	Lectures	Links	Tute/Labs	Assignments	Links	N
1	Logistics, Design Thinking	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-			

	Introduction					
2	Personas and Scenarios User Stories for Requirements User Story Mapping Introducing React Native (1)	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-		-	-
3	Introducing Atomic Design methods Creating a Design System start React Native Basics	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-		-	-
4	Information Architecture in Mobile App Design (note Oct 4th public holiday)	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-	Group Project Checkpoint 1	-	-
5	Prototyping with Figma/Other Usability Testing React Native	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-	Design Journal 1 Group Project Checkpoint 2	-	-
6	Flexibility Week					
7	Mobile Design Principles React Native	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-	Group Project Checkpoint 3	-	-
8	Visual Design in App Design and Colour Theory React Native	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-	**Individual** Research and Presentation	-	-
9	Multi Generational Design and Inclusive Design React Native	Slides (https://webcms3.cse.unsw.edu.au/COMP4511/21T3/resources/66466)	-	-	-	-
10	Demos/Project Work		-	Design Journal 2 Group Project Checkpoint 4	-	

Resources for Students

Texts and recommended readings:

- Buxton (2007), Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kaufmann.
- Cooper et al (2007), About Face 3.0: The Essentials of Interaction Design, John Wiley
- Goodwin (2009), Designing for the Digital Age, John Wiley

- Johnson, J. (2013).Designing with the mind in mind: simple guide to understanding user interface design guidelines. Elsevier.
- Lazar, Feng & Hochheiser, (2010), Research Methods in Human-Computer Interaction, John Wiley
- Nielsen (1993), Usability Engineering, Morgan Kaufmann.
- Norman, D.A. (1998), The Design of Everyday Things(Paperback), MIT Press, London
- Rubin (1994 or 2008) Handbook of Usability Testing, John Wiley Publishing.
- Snyder C (2003), Paper Prototyping, Morgan Kaufmann

Other resources (e.g. links to on-line documentation) will be provided linked from the lecture slides.

Course Evaluation and Development

This course is evaluated each session using the myExperience system.

In the previous offering of this courses, students noted the disconnect between the theory and the practice along with the pacing of the react native materials. Students were also concerned about the number of places to access and get course material and the use of Teams.

Based on their comments, we have decided to team teach the practice lecture to better integrate the theory and the practice and to incorporate more exercises to help pace the react native material. We are using WebCMS to host course content and allow for submission upload and we only link to Moodle to allow for access to the course lecture recordings.

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Comments

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