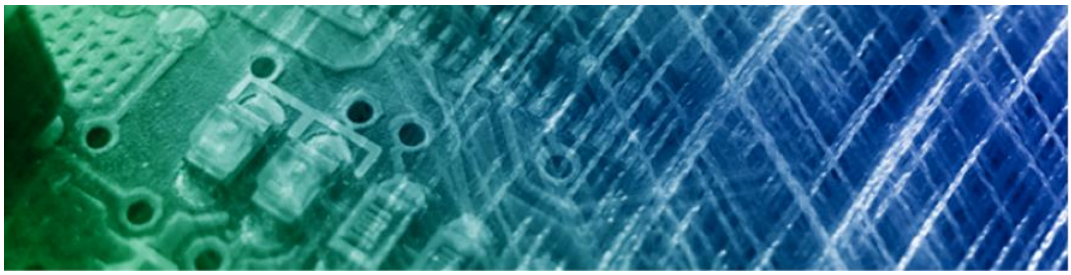
TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

FACULTY OF ARCHITECTURE & DESIGN
Te Wahanga Waihanga-Hoahoa



MDDN 351

WEARABLE TECHNOLOGY

Course Outline Trimester 2, 2015

GENERAL

Trimester 2; 20 points

ASSESSMENT

100% internal by assignment
Note: Any hand-in dates scheduled in the exam period are tentative until the official exam timetable is available.

CLASS TIMES AND LOCATIONS

CLASS SESSIONS:	Tuesday	15:10 – 18:00	Room: WG 401 Media Lab
	Friday	13:40 – 16:30	Room: WG 401 Media Lab

FINAL ASSESSMENT: Will be held in the end of Trimester Two examination period 23 October – 14 November

COORDINATOR

Coordinator

Name: Anne Niemetz
Room: WG 409
Phone: 04 463 6277
Office Hours: Tuesdays 13:00-14:00 or by appointment
Email: anne.niemetz@vuw.ac.nz

For Tutor details please visit the course blog via: blackboard.vuw.ac.nz

COMMUNICATION OF ADDITIONAL INFORMATION

Any changes or additions to this Course Outline will be discussed and agreed with the class, and conveyed via email or through the course blog on the School of Design Teaching and Learning website: blackboard.vuw.ac.nz

PRESCRIPTION

An examination of the many categories of wearable technology, as well as closely related fields, such as wearable computing, techno fashion, electronic textiles, intelligent jewellery and smart clothes. Guest lectures by wearable technology and art designers are planned. Students will research, experiment with and design wearable technology projects.

COURSE CONTENT

In the first major creative project, students will explore wearable technology by focussing on the topic of light. In the second project students will work in groups and have a number of themes to choose from. Both projects will be accompanied by a series of lectures dealing with wearable technology and larger issues related to the field, as well as hands-on tutorials addressing the technical requirements of the assignments. Students will be taught the necessary skills in order to engage with the assignments on a practical and theoretical level. Students will also contribute to the knowledge acquisition of the entire class by researching and presenting one particular wearable technology project.

COURSE LEARNING OBJECTIVES

Students who pass this course should be able to:

1: Develop and execute an effective strategy towards creating an imaginative and innovative design solution with consideration of the problems and needs of wearable technology design challenges and the manners in which they may be addressed. They will be able to critically evaluate the design process and outcomes.

2: Convincingly communicate design concepts orally, visually and in writing with clarity and insight.

3: Reinforce critical design explorations with an understanding of the history and impact of design on global society. Students will also be fluent in the current issues surrounding the design of wearables.

4: Master the basics of electronics and Arduino microcontroller coding, and related technical challenges connected to working with wearable technology.

TEACHING FORMAT

The two sessions per week will include lectures as well as practical tutorials, group critiques and individual mentoring. **Students are expected to attend all weekly sessions.** This is a tightly packed course, so any absences could potentially result in a large setback. **Any potential absences should be communicated to the course coordinator via e-mail prior to the missed class.** Additionally, students may seek assistance from the course coordinator and tutors during office hours or by making appointments.

Group Work: Project 2 is a group project. While the entire project involves teamwork, the project partners are responsible for recording their individual project input.
Project 2 counts 35% of a student's final course grade. 15% of the P2 grade will be a group mark, while 20% will be an individual mark.

All course materials, project descriptions, important dates, reference materials and required readings will be available on the course blog, located on the School of Design Teaching and Learning website, see: blackboard.vuw.ac.nz

MANDATORY COURSE REQUIREMENTS

MCRs are requirements, in addition to achieving a pass grade, that students must meet in order to pass a course. There are no mandatory course requirements for this course. See the 'Assessment' section, below.

WORKLOAD

Attendance and participation is an important aspect of the learning process, and you are required to attend all lectures and tutorials.

You should expect to spend of **around 200 hours** on this course, including both scheduled class time and independent study. Typically this involves around 12-14 hours per week during the twelve teaching weeks, with the balance during the mid trimester break.

If extraordinary circumstances arises that require you to be absent from some class sessions, you should discuss the situation with the Course Coordinator as soon as possible.

Please check out the link below with information on Studio Courses:
www.victoria.ac.nz/fad/faculty-administration/current-students#studioculturepolicy

Students with course timetable clashes are responsible for discussing these with their Course Coordinators. Students who then choose to remain enrolled in such courses must recognise that it is their sole responsibility to seek information from peers, Blackboard and other sources, and catch up on course material they may miss because of clashes.

ASSESSMENT

Assessment items and workload per item		Due	%	CLO(s)
1	P1 'Illuminate'	8 September	30%	1, 2, 3, 4
2	P2 'Three Topics'	27 October	35%	1, 2, 3, 4
3	P3 'Research Presentation'	throughout trimester	20%	2, 3
4	'Quizzes'	throughout trimester	15%	4

All work submitted for this course must be original and developed for this course only, unless prior approval is gained from the course coordinator to further develop existing work from previous or concurrent courses.

The School has a long tradition of providing *critical review* of student work as it progresses especially in design projects. For further information please refer to the Website below:
http://www.victoria.ac.nz/fad/faculty-administration/current-students/faqs

All grades posted during this course are only provisional results until entered on your student record in Banner

PROJECT 1

ILLUMINATE | 4 weeks | Assessment: 30%

In this project students will create a wearable garment or accessory that lights up / blinks / glows / pulsates / radiates.

Brief:
In this project, you will be introduced to creating wearables with the Arduino LilyPad microcontroller, which was designed specifically for use with fabrics. To begin with, you will experiment with controlling LEDs, and through that you will be learn the basics of electronics and Arduino programming. Following the initial experiments you will then complete a concept for your project, a guide to realising this wearable. You will have to experiment with various materials and techniques in order to arrive at an effective design. At the end of the project you should have a functioning wearable with embedded, reactive light component, which you will give a unique title and document in form of photos and video.

The timeframe for this project is suitable for simpler, and sometimes also physically smaller creations.

Give your project a unique title and write a short text, starting with a description and then followed by an elaboration of the intention and meaning (an “artist statement”). Make sure the documentation materials present your work in the very best possible way.

Assessment Criteria:
- The degree to which a variety of design concepts were explored to arrive at the result
- The idea and involvement and engagement of its audience
- The mastery of the technical challenges of the project
- The expressiveness of the final project
- The professionalism of the presentation of the project

Hand-in format:
1. Present finalised wearable in class (details of presentation to be discussed in class)
2. Submit to HandIns drive: finalised presentation materials of project including at least three high-quality, high-resolution images (min. 250dpi), Arduino code, statement with original title of the project (approx. 150 words as text file), and a short, plain video (formatted according to the general MDDN video specs outlined in the section ‘Submission and Return of Work’).

Due dates:

Project Proposal (Concept): 31 July, due before class session
Presentation of wearables in class: 21 August
Documentation materials due on HandIns drive: 8. September, due before class session

Some projects will be selected for the final, curated presentations on 30. October

PROJECT 2

THREE TOPICS | 6 weeks | group project | Assessment: 35%

In this project students will create a wearable technology project that relates to one of the three specific topics given in class. The topics will be presented at the beginning of the project, and will be made available on blackboard.

Brief:
It is your assignment to research and conceptualise a wearable that addresses one of the given topics, be it through acoustic or visual signals, through motion, or by controlling a media environment. There are many possibilities for input sensing, from accelerometers to temperature sensors, and the goal is to create the ideal mapping of input and output, embedded appropriately in the garment or accessory.

Build and expand on your previous experience. Work together as a team. This project is conceived as a group project for three students in each group. In order to be able to distinguish the individual achievements of each group member, you are required to keep track of your contributions to the project, and to elaborate on your achievements during the final presentations.

At the end of the project you should have a functioning reactive/interactive wearable, which you will give a unique title and refine for presentation. Clarify the context in which this work is situated; reflect on the message, significance and the scope of the outcome. Write a text for your project, starting with a short description and then followed by an elaboration of the intention and meaning.

How can the work be improved for presentation? Can the effect be intensified? Do the electrical components need reinforcements? Does the code need to be cleaned up? Prepare and rehearse your work for presentation as exhibit or fashion show item.

Make digital presentation/documentation materials of your work. Document your work through text, photos and video, and if applicable, any other suitable media. Make sure the materials present your work in the best possible way.

Assessment Criteria:
- The degree to which a variety of design concepts were explored to arrive at the result
- The idea and involvement and engagement of its audience
- The mastery of the technical challenges of the project
- The expressiveness of the final project
- The professionalism of the presentation of the project

Hand-in format:

1. Present finalised wearable in class (details to be discussed in class)
2. Submit to HandIns drive: finalised presentation materials of project including at least three high-quality, high-resolution images (min. 250dpi), Arduino code, statement with original title of the project (approx. 150 words as text file), and short video (formatted according to the general MDDN video specs outlined in the section ‘Submission and Return of Work’).

Due dates:

Project Proposal (Concept): 18. September, due before the class session
Presentation of wearables in class: 16. October
Documentation materials due on HandIns drive: 27. October, due before 3pm

Some projects will be selected for the final, curated presentations on 30. October

PROJECT 3

RESEARCH PRESENTATION | throughout the trimester | Assessment: 20%

Students are required to chose and research one wearable technology project, and to present their findings to class.

Brief:
Survey the field of wearable technology with the help of the recommended literature and online materials. Don't forget to look for material in the Design Library. After getting a taste of the breadth and variety of the field, select one project you want to find out more about. List your choice on the blackboard sign-up sheet, and the course coordinator will then create a schedule for the in-class presentations.

Collect data about your chosen project by exploring all avenues, such as print and online media (VUW library). It is sometimes also advisable to contact the creator of the work (through an email inquiry) to find out more about it. Further on, you should search for reviews of your selected project, to be able to evaluate the impact and reception of the work.

Present your selected research project to class in a modified "Pecha Kucha"-style presentation. The exact details of the format will be discussed in class and will also be made available as template.

Ideally your presentation introduces the work and the creator, elaborates on the significance and influence of the work, and briefly analyses how we can learn from these examples and apply this knowledge. It is essential that you provide a critical evaluation based upon your research. You are allowed to show one demonstrative video of the project (up to 2min).

Rehearse your presentation so that you can communicate your research to class with confidence. It is not only important that you research your chosen project thoroughly, it is also important to make the presentation engaging and interesting for your audience.

Assessment criteria:

- How well the topic was researched
- The choice of materials for presentation and the clear layout of materials
- The professionalism of the presentation
- The engaging delivery of the presentation

Hand-in format and due dates:

1. Submit the title and name of artist/company of the wearable project you will present on blackboard by July 27 latest. We will then create the schedule for presentations.

2. Present to class on the date specified in the schedule.

QUIZZES AND EXERCISES

QUIZZES AND EXERCISES | throughout the trimester | Assessment: 15%

In order to be able to create wearable technology projects, it is essential to learn some basics of electronics and Arduino microcontroller coding. To ensure this, there will be a number of in-class technical tutorials. Students are required to revisit these tutorials outside of class time, and to practise and master the tasks set out in these basic tutorials. Should there be any unclarities, students can always contact the coordinator and tutors by email, or discuss their questions in the office hours.

Students will complete small quizzes in class about the technical aspects that were taught in the tutorials. The quizzes will not be announced and may happen at any time during the trimester. Students who are not present during class without excuse will receive a mark of 0 for the quiz.

Further on, students will engage in presentation reviewing. This activity will further students' ability to critically analyse and assess presentation skills. Reviewers will be drawn randomly each session. Students who are not present during class without excuse will receive a mark of 0 for the review exercise.

SUBMISSION AND RETURN OF WORK

Each student is responsible for ensuring their work is submitted to their Course Tutor or Course Coordinator on time and in the required format.

Work submitted late must be submitted to the Course Coordinator. Late submissions will be penalised as set out below, unless an extension is approved by the Course Coordinator.

The general Media Design video specifications for submissions are:

1. Resolution of the video is to be 1920x1080 px (1080p), compressed using the H.264 codec, and exported in the QuickTime file (.mov) or MPEG-4 (.mp4) format.

2. If you did not create the audio yourself, the music/audio has to be either appropriately accredited through Creative Commons or Public Domain audio, or you have acquired rights for educational/commercial reproduction.

3. Credits should be added at the end of the video, and include:

- Name of student
- Name of Project
- Year of work
- Victoria University of Wellington, School of Design
- Appropriate audio accreditation
- Anyone who has helped in any way

Alternative video formats need to be discussed with the course coordinator before submission.

EXTENSIONS

In the event of illness or other extraordinary circumstances that prevent you from submitting and/or presenting a piece of work on time, or that you feel adversely affect the quality of the work you submit, it is important that you discuss your circumstances with the Course Coordinator as soon as possible so that appropriate arrangements may be made. You should complete an Application for Extension form (available from the Faculty Office) for the Course Coordinator to approve. You will also need to provide suitable evidence of your illness or other circumstances. In an emergency, or if you are unable to contact the Course Coordinator, you should advise the Faculty Office of your situation.

PENALTIES

If no extension has been approved, the following penalties will be applied:

- Failure to personally present work at any scheduled graded review will result in an automatic failing grade of E (maximum mark of 39%) for the work being reviewed;
- **Work submitted late will receive a failing grade of E** (maximum mark of 39%);
- Any work not submitted within 5 working days of the due date will be recorded as a non-submission (0%).

REQUIRED MATERIALS AND EQUIPMENT

Students will need to provide all materials and equipment as necessary for the completion of required work. Please check the website link below for the standard requirements:
www.victoria.ac.nz/fad/faculty-administration/current-students/faqs#materialsandequipment

Required: Arduino microcontroller and electronic components (buy course kit at Resources Centre, approx. $98), external hard drive or comparable digital storage medium, head phones, pen and notepad.

SET TEXTS

Any required readings will be made available on the internal Resources drive and on blackboard.

RECOMMENDED READING

Recommended readings will be announced on blackboard.

SCHEDULE OF SESSIONS

Week month	day	date	item	location	time	Comments
Week 29 July	M	13				**Trimester 2 begins**
	TU	14	Class session	WG401		
	W	15				
	TH	16				
	F	17	Class session	WG401		
Week 30 July	M	20				
	TU	21	Class session	WG401		
	W	22				
	TH	23				
	F	24	Class session Withdrawal refund	WG401		***This is the last date you can withdraw from a Tri 2 course with a full refund.***
Week 31 July	M	27				**P3 Topic due**
	TU	28	Class session	WG401		
	W	29				
	TH	30				
	F	31	Class session	WG401		**P1 project proposal due**
Week 32 August	M	3				
	TU	4	Class session	WG401		
	W	5				
	TH	6				
	F	7	Class session	WG401		
Week 33 August	M	10				
	TU	11	Class session	WG401		
	W	12				
	TH	13				
	F	14	Class session	WG401		
Week 34 August	M	17				
	TU	18	Class session	WG401		
	W	19				
	TH	20				
	F	21	Class session	WG401		**P1 Presentations**
Week 35 August	M	24				**Mid-trimester break**
	TU	25				
	W	26				
	TH	27				
	F	28				
Week 36 August/ September	M	31				
	TU	1				
	W	2				
	TH	3				
	F	4				**Mid-trimester break ends**
Week 37 September	M	7				
	TU	8	Class session	WG401		**P1 documentation due**
	W	9				
	TH	10				
	F	11	Class session	WG401		
Week 38 September	M	14				
	TU	15	Class session	WG401		
	W	16				
	TH	17				
	F	18	Class session	WG401		**P2 project proposal due**
Week 39 September	M	21				
	TU	22	Class session	WG401		

	W	23				
	TH	24				
	F	25	Class session Course Withdrawal	WG401		***After this date the Associate Dean's approval is required for withdrawal from Tri 2 Courses.***
Week 40 September/ October	M	28				
	TU	29	Class session	WG401		
	W	30				
	TH	1				
	F	2	Class session	WG401		
Week 41 October	M	5				
	TU	6	Class session	WG401		
	W	7				
	TH	8				
	F	9	Class session	WG401		
Week 42 October	M	12				
	TU	13	Class session	WG401		
	W	14				
	TH	15				
	F	16	Class session	WG401		**P2 Presentations**
Week 43 October	M	19				**Study/Examination Period**
	TU	20				
	W	21				
	TH	22				
	F	23				**Examination Period**
Week 44 October	M	26				**Labour Day – Public Holiday**
	TU	27				**P2 documentation due**
	W	28				
	TH	29				
	F	30	Celebratory presentations	WG401 (tbc)	6pm (tbc)	**Wearable Technology presentations**
Week 45 November	M	2				
	TU	3				
	W	4				
	TH	5				
	F	6				
Week 46 November	M	9				
	TU	10				
	W	11				
	TH	12				
	F	13				
	S	14				**Examination period ends**

CLASS REPRESENTATIVES

The Faculty of Architecture and Design operates a system of Class Representatives in 100-level courses, and Year Representatives in each of the professional disciplines. Student Representatives are elected during a class session in the first week of teaching. All Student Representatives will be listed on the STUDiO notice board in the Atrium, and the relevant Representatives are also listed on studio notice boards. Student Representatives have a role in liaising between staff and students to represent the interests of students to the academic staff, and also in providing students with a communication channel to STUDiO and the Student Representation organiser.

Class Rep name and contact details:

STUDENT FEEDBACK

Student feedback from previous years has been taken into account, and has played an important role in the design of this course. For example, the course coordinator will ensure that enough studio time is provided during class sessions.

The Course Coordinator will discuss feedback from previous students at an appropriate time during the course.

Student feedback on University courses may be found at www.cad.vuw.ac.nz/feedback/feedback_display.php**.**

OTHER IMPORTANT INFORMATION

The information above is specific to this course. There is other important information that students must familiarise themselves with, including:

- Academic Integrity and Plagiarism: www.victoria.ac.nz/home/study/plagiarism
- Aegrotats: www.victoria.ac.nz/about/governance/dvc-academic/documents/aegrotat.pdf
- Academic Progress: www.victoria.ac.nz/home/study/academic-progress (including restrictions and non-engagement)
- Dates and deadlines: www.victoria.ac.nz/home/study/dates
- Faculty Current Students site: www.victoria.ac.nz/fad/faculty-administration/current-students
- Grades: http://www.victoria.ac.nz/students/study/progress/grades
- Resolving academic issues: www.victoria.ac.nz/about/governance/dvc-academic/documents/grievances.pdf
- Special passes: http://www.victoria.ac.nz/about/governance/dvc-academic/documents/special-pass-application-form.pdf
- Statutes and policies including the Student Conduct Statute: www.victoria.ac.nz/home/about/policy
- Student support: www.victoria.ac.nz/home/viclife/studentservice
- Students with disabilities: www.victoria.ac.nz/st_services/disability
- Student Charter: www.victoria.ac.nz/home/viclife/student-charter
- Student Contract: www.victoria.ac.nz/home/admisenrol/enrol/studentcontract
- Turnitin: www.cad.vuw.ac.nz/wiki/index.php/Turnitin
- University structure: www.victoria.ac.nz/home/about
- VUWSA: www.vuwsa.org.nz