

INDE 543 Syllabus

Week	Class	Date of Class	Topic	POC	Location	HW: Readings + Projects	Deliverables	Deadlines
1	B	09/28	Course Introduction What is Virtual Reality?	Tom	MEB 235	Readings(A) Required: What's Real About Virtual Reality? https://goo.gl/9Y84ml Mini-glossary: Virtual reality terms you should know https://goo.gl/L4z3C Optional: What is Virtual Reality? https://goo.gl/8Rm7Ms Virtual Reality Concepts https://goo.gl/e9YqI6	Reading Reflection Questions: One of the intents of virtual reality is to deliver an 'alternative reality' or virtual experience that is indistinguishable from a real world experience. This is sometimes called the "suspension of disbelief", in that you are thinking that you are in a different place. Such a feeling of 'reality' will be conditional on a number of factors. In your own words, describe the factors that you think will contribute to or enhance this suspension of disbelief, and, alternatively those factors that you think will detract or prevent your feeling that you are in an alternative world. (300 words)	10/6/2016 10:00 PM
2	A	10/03	VR Demos	AK	RATLab 5607 40th Ave NE	Readings(B) Required: How HTC and Valve built the Vive https://goo.gl/8fpBGX The Inside Story of How Oculus Cracked the Impossible Design of VR https://goo.gl/wJFNgV	Please go through these before coming in to the RATLab.	10/03/2016 10:00 PM
	B	10/05	Definition of VR History <i>Teams will be assigned for Project 3. The project will be about demonstrating your understanding of VR, it should incorporate features of environment and interaction to tell a compelling story and a clear use case with a good VR experience.</i>	Tom	MEB 235	Readings (C) Required: Virtual reality (VR) https://goo.gl/dSmKH3 The rise and fall and rise of virtual reality https://goo.gl/5czN82	Reading Reflection Question 1: What do you think is the pivotal event or events that brought about the development of virtual reality? You may want to consider the influence of specific technologies, application domains (e.g. simulation, games) or societal need (education, training, therapy etc.). (250 words) Question 2: If there were no concern about technology limitations or cost, in your opinion what do you think would be the best application for virtual reality given its unique capabilities. Justify your answer. (250 words)	10/9/2016 10:00 PM
3	A	10/10	UX Process Overview	AK	MEB 235	Readings (D) Required: Why human-centered design matters https://goo.gl/PcASVO An introduction to human-centered design https://goo.gl/mGNv7c IDEO's 6 Step Human-Centered Design Process: How to Make Things People Want https://goo.gl/njpBLX Optional: Running User Tests for Virtual Reality https://goo.gl/MIHSnN Designing for VR: How to conquer the challenges in User Testing in VR https://goo.gl/nWboJU Start working on Individual Project 1* Environment Creation	Reading Reflection	10/9/2016 10:00 PM
	B	10/12	Human Side of VR	Tom	MEB 235			
4	A	10/17	Workshop on Development Tool	AK	MEB 235	Required: VR Design Process - Google I/O 2016 https://goo.gl/gccZMB VR Interface Design Pre-Visualisation Methods https://goo.gl/Tt2B2k	Reading Reflection	10/16/2016 10:00 PM
	B	10/19	Human Side of VR 2	Tom	MEB 235	Readings (E) http://www.cybertherapy.info/pages/hfact.htm https://catalyst.uw.edu/workspace/file/download/50603bd6160f35efb0c88fbecbde88ccaf304a2b3ac37d57418ef04080b3efd4?inline=1	Reading Reflection Questions: #1 In order of priority, what do you think are the most important performance requirements for VR hardware technologies that provide 3D immersive virtual images. (e.g. field of view, update rate, picture resolution etc.) Justify your answer based the readings and lecture notes. (300 words) #2 Why is creating an augmented reality (e.g. see-through) display more difficult to accomplish than a virtual reality (no see through) display?	10/20/2016 10:00 AM
5	A	10/24	Storytelling and user experience in VR	AK	MEB 235	Readings (F) Required: Glen Keane – Step into the Page https://goo.gl/rHMfOP The Ultimate Beginners Guide to Virtual Reality Storytelling https://goo.gl/GI5LZa The struggle to adapt storytelling for virtual reality https://goo.gl/PPSvyS Get started with VR: user experience design https://goo.gl/V8x2mB You're the center of the universe: A UX guide to designing virtual reality experiences https://goo.gl/h2Ux5 Immersive design: Learning to let go of the screen https://goo.gl/QRjrUk Optional: Storytelling in Virtual Reality: The Basics https://goo.gl/b5uPJB On The Yellow Brick Road of VR Storytelling, Virtual Reality Still Needs to Find Its Heart https://goo.gl/PLxKW0 Virtual Reality Is Becoming the Next Great Storytelling Canvas Brands use it to strengthen consumer relationships https://goo.gl/qcg6qy Start working on Individual Project 2** Interaction in VR	Reading Reflection Questions: 1. Briefly describe when would you prefer a 2D medium (like a 2D video) and when you would prefer a VR medium, while communicating your story/message. 2. What are the 2 most prominent problems in telling a story in VR, and how do you think you could use them as an advantage while telling a story? 3. Describe a compelling scenario when AR would be the preferred medium to tell a story (instead of any 2D medium or VR). Document 1 for Project 3 (details below) (Focus on Topic, and how you arrived at it using the process)	10/23/2016 10:00 PM
	B	10/26	Machine Side of VR #1	Tom	MEB 235		Individual Project 1	10/26/2016 10:00 PM
6	A	10/31	Input Methods in VR	AK	MEB 235	Readings (G) Required: Look-to-Select Interface: Benefits and Drawbacks https://goo.gl/q2muXJ Optimisation for VR in Unity https://goo.gl/xImYjH How to use Cardboard Reticle: VR Gaze Pointer/Cursor, Cardboard Button, & Gaze Input https://goo.gl/qZ7eMy Optional: Unity C# Beginner Tutorial https://goo.gl/UuhI9t	Reading Reflection Questions: 1. Describe how the two input methods(Gaze and Button) can provide a more engaging VR experience. (300 words) 2. After using Google Cardboard, what kind advantages does it have in terms of designing a compelling application along with its interactions and interfaces when compared to higher end VR devices like Oculus or Vive? (300 words)	10/30/2016 10:00 PM
	B	11/02	Machine Side of VR #2	Tom	MEB 235			

7	A	11/07	Special Topic 1	AK	MEB 235	Readings (H) Taking VR Immersion to the Next Level with Large-Scale Haptic Effects https://goo.gl/9oVyZo Locomotion in VR: Overview of different locomotion methods on HTC Vive https://goo.gl/UeF5dT 3 secrets to creating immersive virtual environments with Unity and Vuforia https://goo.gl/eLB7fM	Reading Reflection Questions: 1. What should we take into consideration for creating a engaging VR experience and why? (300 words) 2. Describe a scenario where a non-engaging environment could be useful to the user.(300 words) 3. Based on your own thought, which locomotion method do you consider the best and way? You could also share your own idea. (300 words) Document 2: (details below) (Description of Project 3 - focus on Story, user, usecase and lx method, and their justification.)	11/6/2016 10:00 PM
	B	11/09	Guidelines for VR Experience	Tom	MEB 235		Individual Project 2	11/9/2016 10:00 PM
8	A	11/14	Special Topic 2	AK	MEB 235	Readings (I) Required: The Absolute Beginner's Guide to User Testing https://goo.gl/5LV4Vl Rocket Surgery Made Easy by Steve Krug: Usability Demo https://goo.gl/ZS3Jis Designing for VR: How to conquer the challenges of User Testing in VR https://goo.gl/UWhMeL Vomit Reality: Why VR makes some of us feel sick and how to make it stop https://goo.gl/H7Kb3e Physiological considerations https://goo.gl/i5pH4Q Optional: Simulator Sickness https://goo.gl/1OJSLv Example Usability Test with a Paper Prototype https://goo.gl/HDVJjn How A Complete Novice Learned User Testing In 10 Minutes https://goo.gl/SLnR1z	Reading Reflection Questions: 1. And how can you make sure that the application you are building provides a good user experience without causing sickness? Give an example of how you are going to test it. (300 words) 2. Test your Project 2 and write about 3 most important aspects/features of your project that you think could be improved. Explain your reasons for choosing them - these can be things from the development phase of the application, or playing the application, or something else. (Feel free to go into detail of how you can fix them. Or, imagine that Unity has a magic button that you can simply click on to fix any three things, and then think from that angle.) (400 words)	11/13/2016 10:00 PM
	B	11/16	Applications 1	Tom	MEB 235			
9	A	11/21	Initial Project Demo + Feedback	AK	MEB 235			11/20/2016 10:00 PM
	B	11/23	No Class	Tom	MEB 235		Project 3 Update	11/23/2016 10:00 PM
10	A	11/28	Applications 2/ Project 3 Check in	AK	MEB 235			11/27/2016
	B	11/30	Future of VR	Tom	MEB 235			10:00 PM
11	A	12/05	Work on the project	AK	MEB 235			
	B	12/07	Final Project Demo/ Presentation	Tom	MEB 235		Project 3	
12	Sun	12/11					Project 3 Final Report (Document 3)	12/11/2016 10:00 PM

Project Details

Project 1

Purpose: To create a simple VR environment and launch in the form of an application in Google Cardboard (using your smartphone).

Project 2

Purpose: To design and implement simple interactions in a Virtual Environment on Google Cardboard (on your smartphone). We highly recommend you build on top of Project 1.

1. The user should be able to interact with environment by both:

- a. Gaze
- b. Button

2. Define what you are trying to do (which is what the user will need to do to get to the specific result) - You should have a specific use case

3. The design and the interaction should be such that the user can do the task with minimal instructions, and should know what to expect.

e.g. Some interactions include looking at objects or clicking on them like play music, open a door, change color, teleport to a different place in your environment (or you can create a different environment to be teleported to), etc.

4. We will also be considering aesthetics and engagement of your application. We expect your second project to be engaging and of higher quality in terms of creating stronger immersion for the user.

Deliverable:

You will turn in the app with the above via the dropbox so that we can run it over our smartphones (Android or iOS). You will be graded on this.

A paragraph on your project topic and description -> 50 - 100 words. You won't be graded on this - this is just for our understanding.

Project 3

Purpose: To demonstrate your understanding of the process of creating a VR application with reference to the class material (or other aspects from the field of VR), along with your design considerations.

Your progress and delivery will be graded on the following (it is highly recommended that you use the following document deliverables to align your project:

Document 1 (Deliverable) (1-2 page)

1. Define the purpose of the virtual world experience
2. Define a specific activity or activities to accomplish this purpose in VR.
3. Reasons for the use to care about this experience
4. Tentative Milestones in the coming weeks : How do you intend to achieve this?

Document 2 (Deliverable) (No more than 2 pages)

1. Define who the intended target user is, the scenario in which the user will use this, and the use case and tasks by which the user will accomplish their goal.
2. Mention the VR design considerations you intend to employ while designing the VR application.
3. Address Risks and how they will be mitigated.

Document 3: Final Report (Deliverable) (No more than 4 pages****)

Build upon the information from Doc 1 and Doc 2 above and follow the outline below.

1. Project Abstract

A one paragraph description of the project and why it is should be useful to someone.

2. Introduction (10%)

This includes target group, and purpose of the project.

3. Description of your Process (40%)

This is the main body of the report, which presents description of your process of creating the application.

4. Description of the solution (30%)

- a. Describe the important features of your application
- b. How do the environment, interactions and other features in your application provide the solution?

5. Conclusion and Future Scope (10%)

- a. Explain how you evaluated success -- what did you measure? What tradeoffs did your design entail?
- b. Future scope

6. Reflection (10%)

- a. If you had to do this again, what changes would you do in your process?

7. And other things you experienced while working on your Project 3 with your team (and solo).

8. References

(Any code or assets that you did not originate should be mentioned here)

This will be due by 10 pm on Sunday, December 11th. Designate one person from your team to post it on the Dropbox which we will be creating on the class website (on Catalist).

The Project itself (Main Deliverable):

You will be turning in the final project folder and the app to us. It is highly recommended that you use Cardboard so that you can transfer your learnings from Project 1 and Project 2. Please use the grading rubric (separate document) to see how your project will be evaluated. If you would like to use another device, please talk to us first.

There will be a final presentation where you will be demoing your application at the end of the quarter.

***Treat # of pages as only guidelines for your deliverables. The most important thing is you are able to communicate your ideas with us. If you can do so in a briefer way, that's okay too. We would be mainly evaluating you on your applications (Final Project) in this regard.

Late Policy

Starting Sunday, Oct 30, 2016, all the deliverables will be subjected to the following late policy:

- a. If the deliverable is submitted before the deadline, there will be no penalty.
- b. If the deliverable is submitted within 24 hours after the deadline, there will be a deduction of 5%. Each successive time span of 24 hours after this will amount to deductions of 5% more.
- c. Deliverables will be ineligible for submission after 3 late days (72 hours) from the due date of the deliverable.
- d. If you have extenuating circumstances, please notify us at least 24 hours before the deadline.

General Course Grading Rubric

- 40%: Readings & Reflections (10%) + Project 1 (15%) + Project 2 (15%)
- 50%: Project 3
 - Final Project folder + application: (35%),
 - Doc 1 (1.5%) + Doc 2 (1.5%),
 - Final Report (8%),
 - Presentation (4%)
- 10%: Class Participation