

Syllabus

<p>DTC 492 Section: A Engines & Platforms</p>	
<p>Spring 2020 VMC 111 Tuesdays: 5:45pm – 8:30pm</p>	<p>Instructor: Nikki Dunsire E-mail: nikki.dunsire@wsu.edu Office Hrs: by appointment</p> <p>Teaching Assistant: Conner Goglin E-mail: connorgoglin@gmail.com Office Hrs: by appointment</p> <p>Website: https://3.basecamp.com/3645975/projects/14742150</p>

COURSE DESCRIPTION:	
	<p>This course focuses on game development systems on which they function in order to learn intuitive tools and rapid workflows for creating interactive 3D and 2D content, multi-platform publishing environments, and managing assets for producing games for various platforms.</p>
METHODOLGY & CONTINUED COURSE DESCRIPTION:	
	<p>In this course, we will be learning how to develop with the two primary game engines used in the industry for game and app creation as well as gaining an introductory level understanding of the supporting applications used to build game ready assets. This is a hands-on course with emphasis on an understanding of industry standard technology including Unity, Unreal Engine, Maya, Photoshop and Quixel (time permitting).</p>
ADDITIONAL COURSE OUTCOMES:	
	<p><i>Upon successful completion of this course, the student should have developed skills in:</i></p> <ul style="list-style-type: none"> • Critical thinking and creative problem solving • Team building • Recognition of appropriate conduct in a professional environment • Heightened sense of time management

COURSE SUCCESS FACTORS:	
	<ol style="list-style-type: none"> 1. Punctuality: You are responsible for getting to class on time. Most announcements and lecture material will be provided at the beginning of class. If you are late, you are responsible for getting the information from your classmates. Additionally, you will be deducted points towards your overall grade if it becomes a consistent issue. Three classes late = 1 absence. If you have a circumstance where you will need to be consistently late, please let me know (i.e. work, child care etc). 2. Attendance: You need to be in class to get all of the information required to find success in this course. Class notes will only get you so far. <ul style="list-style-type: none"> • If you miss a class, you are responsible for talking to your classmates and reviewing your lecture notes to get yourself caught up. Your homework for the given class is still due! • If you are sick, please do not come to class and infect others. Utilize online class resources to reach out to classmates. If you enter the classroom sick, I will respectfully request that you go home and get well. • In the case of unexcused absences, students cannot makeup the work. Students missing three or more unexcused classes will be asked to drop the course and retake it when they are able. • Absences can be excused, and homework can be submitted late ONLY IF you provide supporting documentation for your absence. Excused absences are at the discretion of the instructor! <p><u>Steps to take if you miss class are to:</u></p> <ul style="list-style-type: none"> • Email me PRIOR to the start of class letting me know why you are absent. • Turn in homework due for that day by emailing me for submission instructions. OR If the file size is small enough, email me content. The time stamp must be before or during class time in order to get credit. Anything received after will not be credited. • Talk to your classmates regarding what you missed and be sure to get assignments due for the next week. You are still responsible for that content. <p><u>Presentations, Midterm & Final Evaluations:</u></p> <ul style="list-style-type: none"> • You may NOT miss project presentations or the final class date. Doing so will equal an automatic failure for the project or activity on that given date. If for some reason you cannot make one of these times, you must contact me WELL BEFORE the class that you need to miss. Excuses given after the fact will not be accepted. • During these critiques, participation is expected.

	<p>3. <u>Receptiveness to Feedback and Critique:</u></p> <ul style="list-style-type: none"> You will be expected to take notes during moments of critique. Do not disparage your own work Excuses will not be tolerated, as they will not be acceptable in a professional environment either. Remember, you are here to learn and receiving feedback and critique is a big part of that. Ask questions! Don't assume things. <p>4. <u>Getting Assignments in on time (I.e. Hitting Deadlines):</u></p> <ul style="list-style-type: none"> This is crucial. You are going into a field where deadlines are extremely important. If you consistently miss those, you will not maintain employment. So, break bad habits now or don't start them to begin with. I WILL NOT ACCEPT LATE WORK!!! If you do not turn in your homework when it is due or hit critical deadlines you will not pass this course. Do not procrastinate, this is a killer. Exceptions can be made in extenuating circumstances at the discretion of the instructor. <p>5. <u>Responsibility and Accountability:</u></p> <ul style="list-style-type: none"> As adults, you are responsible for managing your time wisely, asking questions as needed, and being aware of due dates and requirements for assignments. Excuses will not be accepted. Back up your work! Failure of computer software and or Hardware will not be accepted as an extenuating circumstance for late assignments, so back up your work daily and save in iterations! <p>6. <u>Proactive Learning:</u></p> <ul style="list-style-type: none"> I am certainly a resource for you; however, I will also be expecting you to be proactive in finding solutions to problems or questions that you have. This means, utilize google, online tutorials, forums, the library, tutors and most importantly each other!! As a professional you will often be asked to do things that you don't know how to do. You will be expected to solve problems and find answers. This will be no different here. <p>7. <u>Communication:</u></p> <ul style="list-style-type: none"> IF you are lost or need assistance with materials (after you've made some attempt at seeking answers on your own) please email me or talk to me in class. If I don't hear from you, I am assuming that things are going well. <p>8. <u>Come to Class Prepared:</u> You are REQUIRED to bring all course related materials to class with you each week. This includes notes, hard drives, thumb drives and course projects.</p> <p>9. <u>Have Fun:</u> This is the best one! You are going into a really cool field!! Try to come out of this course with portfolio material!</p>
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UNIVERSITY POLICIES	
	<p>Academic Integrity is the cornerstone of the university and will be strongly enforced in this course. Any Student found in violation of the academic integrity policy will be given an “F” for the course and will be referred to the Office of Student Conduct. For additional information about WSU’s Academic Integrity policy/procedures, please contact 360.546.9573.</p>
PLAGIARISM:	
	<p>“Plagiarism, presenting the writings, images or paraphrased ideas of another as one’s own, is strictly prohibited. Properly documented excerpts from others’ works, when they are limited to an appropriate amount of the total length of a student’s paper, are permissible when used to support a researched argument.”</p>
DISABILITY ACCOMODATIONS	
	<p>Accommodations may be available if you need the in order to fully participate in this class because of a disability. Accommodations may take some time to implement so it is critical that you contact Disability Services, located in the Student Resource Center on the Lower Level of the Student Services Center 360.546.9138</p>
EMERGENCY NOTIFICAION SYSTEM:	
	<p>WSU has made an emergency notification system available for faculty, students and staff. Please register at myWSU with emergency contact information (cell, email, text, etc). You may have been prompted to complete emergency contact information when registering for classes on RONet. In the event of a building evacuation, a map at each classroom entrance shows the evacuation point for reach building. Please refer to it. Finally, in case of class cancellation campus-wide, please check local media, the WSU Vancouver web page and/or http://www.flashalert.net/. Individual class cancellations may be made at the discretion of the instructor. Each individual is expected to make the best decision for their personal circumstances, taking safety into account. Safety plan website: http://safetyplan.vancouver.wsu.edu/ .</p> <p>Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the “Alert, Assess, Act” protocol for all types of emergencies and the “Run, Hide, Fight” response for an active shooter incident. Remain <i>ALERT</i> (through direct observation or emergency notification), <i>ASSESS</i> your specific situation, and <i>ACT</i> in the most appropriate way to assure you own safety (and the safety of others if you are able).</p>

TEXT and MATERIALS:	
Required Text(s)/Materials:	<ul style="list-style-type: none"> • Portable storage media 8gig or < and Back-up media • Printed lecture notes in 3-ringed binder
Recommended Software:	<p>Maya [Free 3yr student license]: https://www.autodesk.com/education/free-software/maya Unity [Free student license]: https://unity3d.com/unity Unreal Engine [Free student license]: https://www.unrealengine.com/en-US/what-is-unreal-engine-4 Headus UV Layout: https://www.uvlayout.com/ Substance Painter: https://www.allegorithmic.com/ [\$19/month] Photoshop [\$9.99/month solo license] 3ds Max [Free 3yr student license] Quixel: http://quixel.se/ Marmoset Toolbag2: https://www.marmoset.co/shop/tb2 [\$150] xNormal: http://www.xnormal.net/Downloads.aspx http://www.beepbox.co/ – Audio mixing for games http://www.bfxr.net/ – Sound effects creator https://pixlr.com/ – browser-based painter/editor Scratch: https://scratch.mit.edu/ https://itch.io/ - Possible place to post your original games http://www.piskelapp.com/ - free online sprite editor https://www.oculus.com/ - Oculus</p>
Recommended Resources:	<p>Lynda.com Autodesk.com Adobe.com http://pigsquad.com/ The Portland Indie Game Squad http://www.oregongames.org/ http://www.meetup.com/Portland-Virtual-Reality-Meetup/ http://www.meetup.com/pdxvrgaming/ http://www.meetup.com/hololenspdx/ http://www.meetup.com/UnityPDX/ http://www.meetup.com/UnrealPDX/ www.siggraph.org ACM Siggraph www.cgsociety.org The Society of Digital Artists http://www.cgmeetup.org/ Computer graphics industry job postings</p> <hr/> <p>http://www.gamasutra.com/ Gamasutra is one of the best game industry oriented websites. In addition to articles and post mortems written by developers, they also have a huge number of videos from the Game Developer's Conference covering a wide variety of topics. http://kotaku.com/ Kotaku is a sight mostly about video games and game culture. Occasionally they discuss business, but mostly its games and reviews. http://www.joystiq.com/ Joystiq is a site dedicated to games and game culture. http://www.polygon.com/ An interesting site that is a smattering of all things game industry. http://www.rockpapershotgun.com/ RPS is a fantastic site dedicated to all things video games. They often have good discussions on a number of topics and of all of the sites listed, have the best community.</p>

Field Trips:	NONE		
Guest Speakers:	NONE		
Guest Reviewers or Jurors:	NONE		
GRADING POLICY:			
Grade Percentage Breakdown:	Weekly Attendance & Participation Assignments Game Design Document Team Project Final Project: Asset Integration	20% of grade 40% of grade 20% of grade 20% of grade	
	Total	100 %	
Faculty Grading Scale:	A 100 – 93% B+ 89.99 – 87% C+ 79.99 – 77% F 69.99 – 0%	A- 92.99 – 90% B 86.99 – 83% C 76.99 – 73%	B- 82.99 – 80% C – 72.99 – 70%
Standards For Achievement:	<p>Grade A: Student's performance is outstanding. Student exhibits achievement and craftsmanship in all work. Design criteria are exceeded and student challenges him/herself in project design. Work presented is considered to be professional quality. Student exhibits commitment to expanding ideas, vocabulary and performance, and responds appropriately to direction and criticism.</p> <p>Grade B: Student performs beyond the requirement of the project. Student exhibits above average progress and craftsmanship. A design criterion is exceeded. Work presented is considered to be approaching professional quality. Student's work reflects above average interest in expanding ideas, vocabulary, and performance.</p> <p>Grade C: Criteria of assignments are met, and all requirements are fulfilled. Student's work exhibits promise and professional quality but needs improvement. Projects and assignments reflect an average to above average amount of time and effort.</p> <p>Grade F: Student performance is uneven and below average. Requirements for projects are only partially fulfilled. Student's participation in class is inadequate. Work presented is below industry standards.</p>		
HOMEWORK SUBMSSION POLICY			
	STANDARD NAMING CONVENTION FOR DIGITAL HOMEWORK SUBMITTED		
	LastnameFirstname_projectName.fileExtension		

Holiday Schedule:	Monday 01/20/20: MLK Jr Day: School Closed Monday 02/17/20: President's Day School Closed Monday 03/16/20 – Friday 03/20/20: Spring Break No Classes
Term Breakdown:	Monday, Jan 13, 2020 - Friday, May 05, 2020

Important Dates & Deadlines:	Students are encouraged to refer to the academic calendar often to be aware of critical deadlines throughout the semester. The academic calendar can be found at https://registrar.wsu.edu/academic-calendar/ . Questions regarding the academic calendar can be directed to the Office of Student Affairs in VSSC100 or call 360.546.9559.
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University Learning Objectives	At the end of this course, you should be able to:	Required Course Activities that Advance Learning Goals and Method of Assessment	CMDC Goals & Objectives
Critical & Creative Thinking	<p>Define, analyze and solve problems</p> <p>Integrate and synthesize knowledge from multiple sources</p> <p>Access the accuracy and validity of findings and conclusions</p> <p>Understand how one thinks, reasons, and makes value judgements, including aesthetical judgements</p> <p>Combine and synthesize existing ideas, images or expertise in original ways</p> <p>Think, react in an imaginative way characterized by high degree of innovation, divergent thinking and risk taking</p>	<p>Weekly course assignments leading to a final game build.</p> <p>Seeking answers to complex problems using methods not provided in class.</p> <p>Working in small teams to solve problems and get feedback on asset builds.</p>	<p>Goal 1: Demonstrate competency with computer for designing and distributing digital works in various mediums for effective human-computer interactions</p> <p>Goal 2: Synthesize media forms for multimedia contexts</p> <p>Goal 3: Employ the principles of visual form for sophisticated image manipulation</p> <p>Goal 4: Understand the production and assessment of media objects</p>

Communication & Information Literacy	<p>Visually express ideas in coherent, concise, and technically correct forms</p> <p>Identify, explain, compare, apply, argue, interpret, and evaluate information in a variety of digital forms.</p> <p>Engage effectively with diverse groups through listening & speaking one-on-one, in small groups, & in large groups, both online & face to face.</p>	<p>In class discussions and critiques.</p> <p>Working in small teams to solve problems and get feedback on asset builds.</p> <p>Working in small teams to produce pre-production materials for an original game.</p> <p>Developing an understanding of software and techniques through weekly assignments.</p>	<p>Goal 3: Employ the principles of visual form for sophisticated image manipulation</p> <p>Goal 4: Understand the production and assessment of media objects</p> <p>Goal 6: Question the way digital media functions in multiple cultural contexts</p> <p>Goal 7: Recognize various forms of language processing and their implication for media authoring</p> <p>Goal 8: Appreciate the history of technological development, from local to global perspectives, and its implications for a variety of mediums</p> <p>Goal 9: Utilize an interdisciplinary perspective in order to understand the basics of social, economic, and education changes brought about by digital media</p> <p>Goal 10: Be practiced and capable communicators in all mediums</p>
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Note - This is Subject to shift around a little bit depending on class progression.

Date	Topic/Lab	Assignment(s) Due
Week 01 Jan 14	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Course Introduction and expectations • Software resources • Local and national game organizations and events • Production pipeline overview and terminology • GDD Team Outlines • Intro to Unity Part I start (time permitting) 	<u>Assignments:</u> <ul style="list-style-type: none"> • Game Design Document [100pts] [Due weeks 16 & 17]
Week 02 Jan 21	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unity Part I <ul style="list-style-type: none"> ◦ Overview & Interface: <ul style="list-style-type: none"> ▪ Project Structure ▪ Game Objects ▪ Navigating scenes ▪ Working with assets ▪ First person vs third person setups ▪ Asset store & importing ▪ Using Triggers ▪ Dynamic vs static objects ▪ Basic lighting ▪ Creating Builds 	<u>Assignments:</u> <ul style="list-style-type: none"> • Basic Scene Functionality [20pts] <u>Due:</u> <ul style="list-style-type: none"> • GDD - Outline
Week 03 Jan 28	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unity Part II <ul style="list-style-type: none"> ◦ Simple Roll-A-Ball Interactivity: <ul style="list-style-type: none"> ▪ Working with 3D objects ▪ Assigning basic materials ▪ Working with scripts 	<u>Assignments:</u> <ul style="list-style-type: none"> • Simple Roll-A-Ball .exe [20pts] <u>Due:</u> <ul style="list-style-type: none"> • Basic Scene Functionality .exe
Week 04 Feb 04	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unity Part II <ul style="list-style-type: none"> ◦ Roll-A-Ball with Environment: <ul style="list-style-type: none"> ▪ Manipulating and cleaning up assets ▪ Colliders ▪ Prefabs ▪ Materials and material channels <ul style="list-style-type: none"> • Spec/Gloss vs. PBR workflows ▪ Working with Terrains <ul style="list-style-type: none"> • Defining paths and materials 	<u>Assignments:</u> <ul style="list-style-type: none"> • Environment layout and prefabs [Due week 07] <u>Due:</u> <ul style="list-style-type: none"> • Simple Roll-A-Ball .exe
*Week 05 Feb 11 CG	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unity Part II continued <ul style="list-style-type: none"> ◦ Roll-A-Ball with Environment: <ul style="list-style-type: none"> ▪ Assets package: <ul style="list-style-type: none"> • Foliage • Dust storms (Particles) ▪ Lighting extended ▪ Camera setup ▪ Collectables ▪ Working with Terrains <ul style="list-style-type: none"> • Defining paths and materials ▪ Defining the hero character and enemy ▪ Using Nav Mesh Agent 	<u>Assignments:</u> <ul style="list-style-type: none"> • Environment extended w/Player setup [Due week 07]

*Week 06 Feb 18 CG	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unity Part II continued <ul style="list-style-type: none"> ◦ Roll-A-Ball with Environment: <ul style="list-style-type: none"> ▪ Setting up the game logic on the spacecraft ▪ Creating UI ▪ Adding Audio • User testing in groups <ul style="list-style-type: none"> ◦ Creating builds 	<u>Assignments:</u> <ul style="list-style-type: none"> • Finished game to date with .exe [100pts] [Due week 07]
Week 07 Feb 25	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Maya <ul style="list-style-type: none"> ◦ Interface overview (review) ◦ Project structures ◦ Primitives and components ◦ Customizing the interface • Simple vehicle builds 	<u>Assignments:</u> <ul style="list-style-type: none"> • Primitive Vehicle [20pts] (modeling warmup) <u>Due:</u> <ul style="list-style-type: none"> • Finished Roll-A-Ball extended game .exe
Week 08 March 03	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Customizing the Interface review • Introduction to Maya continued <ul style="list-style-type: none"> ◦ Working with pivot points ◦ Modeling tools ◦ Grouping Vs combining • Identifying Modeling Errors • Fixing tools for Modeling 	<u>Assignments:</u> <ul style="list-style-type: none"> • Spacecraft Parts [30pts] (modeling warmup) <u>Due:</u> <ul style="list-style-type: none"> • Primitive Vehicle
Week 09 March 10	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Modeling game assets <ul style="list-style-type: none"> ◦ Creating high and low poly geometry ◦ Maya sculpting tools • Water well build 	<u>Assignments:</u> <ul style="list-style-type: none"> • Water well high and low poly
Week 10 March 17	SRPING BREAK – NO CLASS	
Week 11 March 24	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Hypershade basics • Introduction to UV layout & Unwrapping <ul style="list-style-type: none"> ◦ Maya UV editor <ul style="list-style-type: none"> ▪ UV projections, Cutting, welding and packing ◦ Headus UV Layout <ul style="list-style-type: none"> ▪ Creating seams, Cutting, welding, packing 	<u>Assignments:</u> <ul style="list-style-type: none"> • Water Well UV Layout
*Week 12 March 31 CG	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Creating and baking texture maps <ul style="list-style-type: none"> ◦ Diffuse ◦ Ambient Occlusion ◦ Normals • Assembling asset in Unity - testing 	<u>Assignments:</u> <ul style="list-style-type: none"> • Water Well texture maps • Water Well integration into Unity [Due week 17]
Week 13 April 07	<u>Lecture / In-Class Exercise:</u> <ul style="list-style-type: none"> • Introduction to Unreal Engine (Basic Scene): <ul style="list-style-type: none"> ◦ Interface introduction and project structure ◦ Navigation, placing and manipulating actors ◦ Bsp geometry ◦ Blocking out an interior scene 	<u>Assignments:</u> <ul style="list-style-type: none"> • Basic UE4 Scene [20pts] • Water Well integration into UE scene [Due week 17]

	<ul style="list-style-type: none"> ○ Lighting basics ○ Working with materials ○ Creating landscapes ● Integrating the Water Well 	
*Week 14 April 14 CG	<u>Lecture / In-Class Exercise:</u> ● Introduction to Unreal Engine continued	<u>Assignments:</u> ● Start UE game build [50pts] [Finished version due week 17] <u>Due:</u> ● Basic UE4 Scene .exe
*Week 15 April 21 CG	<u>Lecture / In-Class Exercise:</u> ● Introduction to Unreal Engine continued	<u>Assignments:</u> ● Continue game build
Week 16 April 28	GDD Presentations Round 01 <u>In-Class Exercise:</u> Project Wrap-ups	<u>Assignments:</u> ● Continue game build
Week 17 May 05	FINAL: TBD GDD Presentations Round 02 **You must be present to receive credit for your evaluation! No email or online submissions accepted. Any and all absences must be approved and excused by me well in advance, otherwise supporting documentation is required (i.e. doctor's note, police reports, etc...)**	<u>Due:</u> ● Final Water Well in Game Scene(s) 100pts Total: <ul style="list-style-type: none"> ○ High Poly /Low Poly Builds [25pts] ○ UV unwraps [20pts] ○ Texture maps and bakes [25pts] ○ Unity integration (Extended Roll-A-Ball) [15pts] ○ Unreal Engine integration (into basic UE scene) [15pts] ● Finished UE Game [50pts] ● Game Design Document Presentations ● Extra Credit (optional): <ul style="list-style-type: none"> ○ Spaceship replacement (unity) ○ Pickups replacement (unity) ○ UE asset replacements and enhancement ○ Exceptional set dressing (above and beyond what was done in class) ○ Additional UI/UX that adds the user experience