

**Visualization and Simulation in Japan
FSE 394**

Summer, 2016
Line Number: N/A

Course Meetings: May 13 – 29 (M – F @ 9:00AM – 4:00PM)

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Course Description:

This course is designed to help students develop global awareness and competencies that they are initiating their engineering/science program. Japan is one of the leading countries in terms of technologies and engineering. This program provides students opportunities to learn about the industry and technological development of Japan and observe how their technologies are applied into real-world applications in Japanese society. Each student is asked to find a problem related to his/her specific engineering domain and implement a computational tool to visualize the problem and simulate the solutions. Students will also learn the basic knowledge and skills to develop the tool as a **Serious Game**, which can be played by those who want to study the engineering domain. Students will experience how professional engineers engage in the global industry today. Students will be able to learn Japanese culture and to interact with local people.

“A serious game or applied game is a game designed for a primary purpose other than pure entertainment. The “serious” adjective is generally prepended to refer to products used by industries like defense, education, scientific exploration, health care, emergency management, city planning, engineering, religion, and politics” (Wikipedia)

Course Goals:

Major Topics Covered in the Course

- How the practice of engineering differs around the world
- Basic serious game development to visualize the engineering data and simulate the solutions
- Awareness of national and international standards
- Different uses for technology in different cultures
- The importance of communicating your ideas effectively in a global context

Learning Outcomes:

Upon successful completion of this course:

- The ability to develop an awareness of international standards.
- The ability to discuss the personal and professional impact of trends in global technology and software engineering.
- The ability to elicit and documents problem requirements.
- The ability to create a design to solve a problem.
- The ability to create a user interface design based on user’s background and culture.
- The ability to use innovative and entrepreneurial thinking to create new solutions to problems in other cultures.

Pre-requisites/Co-requisites/Anti-requisites:

CSE100, CSE110, CST 100 or one semester of programming course or a high school course to know basic concepts of control flows including conditional statements (“if” statements), loops, functions (procedures/ methods), and arrays. Enough knowledge and skill on problem-solving to pass a 300 level engineering course is required.

Required Course Texts/ Readings:

"Serious Games and Virtual Worlds in Education, Professional Development, and Healthcare", by Klaus Bredl, ISBN-13: 978-1466636736 (Recommended)

Course Format:

This is a lecture course with active learning encouraged. Each lecture can be followed by a field trip (Afternoon sessions) to learn how the lecture topics are applied in the real society. There will be several visits to high-tech companies and research institutions to learn their technologies and engineering applications. The course will develop a progressive global engineering foundation by focusing on main topics.

In the morning sessions, each student is asked to bring a laptop PC/Mac, which can access to the Internet wirelessly. The following are the main topics covered in this class.

- International standards in engineering and quality assurance
- Methodologies to visualize and simulate engineering problem and solutions
- Serious game designs and development

The instructor explains the basic concepts and theory using PowerPoint Slides shown on the projector, and demonstrates the functions and commands. The students follow the instructions using their laptops. If they have any question or problem during the instructions, the instructor shows the solutions. For each topic, the students first look at the instructor’s demonstration, and repeat the same thing on their laptops. All of the materials using in class are available online at myASU course site.

Coursework

Students are asked to complete daily assignments and a final project, and the final grade for this course will be based on them. The breakdown is as follows:

- Daily Assignments (50%): Each class gives a small assignment, which is announced at the second half in class. The students are expected to complete them before class starts. The instructor checks the assignment at the beginning of class.
- Final Project (50%): The Final project will have different deliverables over the time frame of the class.
 - 1) On the 6th day each student is asked to make a 5-10 minutes presentation to show his/her idea for the final project.
 - 2) The developed serious game is demonstrated at the last class.

For your own protection, you should keep a copy of everything you hand in, and you should keep your graded assignments at least until grades are finalized at the end of the semester, and in the event you wish to contest any grades.

Schedule and Assignments

	Topics (Morning Session)	Field Trip (Afternoon Session)	Assignment Due
1	<ul style="list-style-type: none"> ■ Introduction ■ Unity Basics 	CyberAgent	
2	<ul style="list-style-type: none"> ■ JavaScript in Unity ■ 3D Transformation ■ 3D Contents Control 	Campus tour 1: Waseda University	First Game

3	<ul style="list-style-type: none"> ■ Projection mapping Lecture and workshop 	Campus tour 2: Schools of Engineering in Waseda University	GUI Control and JavaScript
4	<ul style="list-style-type: none"> ■ 3D modeling in 3ds max ■ Animation in 3ds max ■ 2D Image development in Photoshop 	Forum8 (SHINAGAWA)	None
5	<ul style="list-style-type: none"> ■ Particle Systems in Unity 	Nissan Engine Factory (YOKOHAMA) 2:00 - 4:00	3D modeling
6	<ul style="list-style-type: none"> ■ Presentations: Proposal ■ GUI Development 	Miraikan Museum (ODAIBA)	Dynamic Control and Animation
7	<ul style="list-style-type: none"> ■ Simulations 	Environment Expo at TOKYO BIG	2D Asset Creations
8	<ul style="list-style-type: none"> ■ File I/O 	Toshiba Innovation Museum	Visualize the dynamic objects
9	<ul style="list-style-type: none"> ■ Workshop for Final Project 	NHK Dev & Research Center (SHIBUYA)	File I/O exercise
10	<ul style="list-style-type: none"> ■ Presentation & Demo 	(Closing Lunch)	Final Project

Final Grades:

The final grade is given by using the following rule.

A-/ A/ A+	90-91.9/ 92-97.9/ 98-100	Excellent
B- /B/ B+	80-81.9/ 82-87.9/ 88-89.9	Good
C	70-79.9	Average
D	60-69.9	Passing
E	<60	Failure
XE		Failure due to Academic Dishonesty

Attendance in this class is mandatory. The attendance is checked in every lecture. If they attend more than 90 % of sessions, they don't lose any points. Otherwise, the total points are calculated using the following "attendance-rate." Therefore, it is not allowed to send e-mails about sick leave or family emergency to excuse for class-absence. Only if they need a long absence, contact the instructor in person.

0 - 1	Lectures Missing	No grade down
2	Lectures Missing	One minor grade down ex. A→A-
3	Lectures Missing	One grade down ex. A→B
More than 4	Lectures Missing	Not pass

We expect the students to maintain atmosphere conducive to teaching and learning in the class. It would be appreciated if all cell phones and pagers were switched off, or to vibrate mode. Active student participation is expected in all in-class discussions

Extra Credit

There will be no extra credit opportunities assigned for this course.

Late Assignments

Unexcused late assignments will not be accepted. Excuses for an assignment must be made an approved in advance of the due date of the assignment. Requests for excuses must be written, either on

paper or email, and approval must be obtained, either by an email reply or by having the paper excuse signed. In order to get credit, with the late assignment you must turn in a copy of the email approval or signed written excuse.

Course Policies

Each student is asked to bring his/her laptop (PC or Mac) to every class time. The course is designed to distribute workload pretty evenly over the program period. Students would typically spend 2-3 hours every day working on homework assignments and projects. Plan your schedule accordingly.

Grade Appeals

ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see <http://catalog.asu.edu/appeal>.

Incompletes

A mark of "I" (incomplete) is given by the instructor when you have completed most of the course and are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. You are required to arrange with the instructor for the completion of the course requirements. The arrangement must be recorded on the Request for Grade of Incomplete form (<http://students.asu.edu/forms/incomplete-grade-request>).

Student Standards

Students are required to read and act in accordance with university and Arizona Board of Regents policies, including:

The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308:
<https://students.asu.edu/srr>

Academic Integrity

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see <http://provost.asu.edu/academicintegrity>.

If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, school, and/or dean. Academic dishonesty includes borrowing ideas without proper citation, copying others' work (including information posted on the internet), and failing to turn in your own work for group projects. Please be aware that if you follow an argument closely, even if it is not directly quoted, you must provide a citation to the publication, including the author, date and page number. If you directly quote a source, you must use quotation marks and provide the same sort of citation for each quoted sentence or phrase. You may work with other students on assignments, however, all writing that you turn in must be done independently. If you have any doubt about whether the form of cooperation you contemplate is acceptable, ask the TA or the instructor in advance of turning in an assignment. Please be aware that the work of all students submitted electronically can be scanned using SafeAssignment, which compares them against everything posted on the internet, online article/paper databases, newspapers and magazines, and papers submitted by other students (including yourself if submitted for a previous class).

Note: Turning in an assignment (all or in part) that you completed for a previous class is considered self-plagiarism and falls under these guidelines. Any infractions of self-plagiarism are subject to the same penalties as copying someone else's work without proper citations. Students who have taken this class previously and would like to use the work from previous assignments should contact the instructor for permission to do so.

Prohibition of Commercial Note Taking Services

In accordance with [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the notetaker's name as well as the instructor's name, the course number, and the date.

Student Support and Disability Accommodations

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities.

[Qualified students with disabilities may be eligible to receive academic support services and accommodations](#). Eligibility is based on qualifying disability documentation and assessment of individual need. Students who believe they have a current and essential need for disability accommodations are [responsible for requesting accommodations and providing qualifying documentation](#) to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities. Qualified students who wish to request an accommodation for a disability should contact their campus DRC at: <http://www.asu.edu/studentaffairs/ed/drc/>

If you are a student in need of special arrangements, we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services. Typically, once a student discloses the need for an accommodation through their study abroad application, the Study Abroad Office, the academic unit, the student and DRC will develop a plan on how to best accommodate the student within the parameters available within the onsite locations.

Drop and Add Dates/Withdrawals

Please refer to the [academic calendar](#) on the deadlines to drop/withdraw from this course. Consult with your advisor and notify your instructor if you are going to drop/withdraw this course. If you are considering a withdrawal, review the following ASU policies: [Withdrawal from Classes](#), [Medical/Compassionate Withdrawal](#).

Please note that the ASU Academic Calendar only refers to withdrawal for the academic portion of your study abroad program. Please refer to the [Study Abroad Withdrawal Policies](#) for important dates regarding withdrawing from your Faculty Directed program.

Email Communications

All email communication for this class will be done through your ASU email account. You should be in the habit of checking your ASU email regularly as you will not only receive important information about your class(es), but other important university updates and information. You are solely responsible for reading and responding if necessary to any information communicated via email. For help with your email go to: http://help.asu.edu/sims/selfhelp/SelfHelpHome.seam?dept_pk=822 and file a help desk ticket by clicking on "My Help Center."

Campus Resources

As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.

- Tutoring: <http://studentsuccess.asu.edu/frontpage>
- Counseling Services: <http://students.asu.edu/counseling>
- Financial Aid: <http://students.asu.edu/financialaid>
- Disability Resource Center: <http://www.asu.edu/studentaffairs/ed/drc/>
- Major/Career Exploration: <http://uc.asu.edu/majorexploration/assessment>
- Career Services: <http://students.asu.edu/career>
- Student Organizations: <http://www.asu.edu/studentaffairs/mu/clubs/>

Harassment Prohibited:

ASU policy prohibits harassment on the basis of race, sex, gender identity, age, religion, national origin, disability, sexual orientation, Vietnam era veteran status, and other protected veteran status. Violations of this policy may result in disciplinary action, including termination of employees or expulsion of students. Contact Student Life (UCB 221) if you feel another student is harassing you based on any of the factors above; contact EO/AA (480-965-5057) if you feel an ASU employee is harassing you based on any of the factors above.

Establishing a Safe Environment:

Learning takes place best when a safe environment is established in the classroom. Students enrolled in this course have a responsibility to support an environment that nurtures individual and group differences and encourages engaged, honest discussions. The success of the course rests on your ability to create a safe environment where everyone feels comfortable to share and explore ideas. We must also be willing to take risks and ask critical questions. Doing so will effectively contribute to our own and others intellectual and personal growth and development. We welcome disagreements in the spirit of critical academic exchange, but please remember to be respectful of others' view points, whether you agree with them or not.

Syllabus Disclaimer:

The course syllabus is an educational contract between the instructor and students. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email, or in the *Announcements* section on Blackboard.

Student Conduct Statement:

Students are required to adhere to the behavior standards listed below:

- Arizona Board of Regents Policy Manual Chapter V – Campus and Student Affairs: Code of Conduct <http://www.azregents.edu/policymanual/default.aspx>,
- ACD 125: Computer, Internet, and Electronic Communications <http://www.asu.edu/aad/manuals/acd/acd125.htm>, and
- the ASU Student Academic Integrity Policy <http://www.asu.edu/studentaffairs/studentlife/srr/index.htm>.

Students are entitled to receive instruction free from interference by other members of the class. If a student is disruptive, an instructor may ask the student to stop the disruptive behavior and warn the student that such disruptive behavior can result in withdrawal from the course. An instructor may withdraw a student from a course when the student's behavior disrupts the educational process under USI 201-10 (<http://www.asu.edu/aad/manuals/usi/usi201-10.html>).

Course discussion messages should remain focused on the assigned discussion topics. Students must maintain a cordial atmosphere and use tact in expressing differences of opinion.

Inappropriate discussion board messages may be deleted if an instructor feels it is necessary. Students will be notified privately that their posting was inappropriate. Student access to the course Send Email feature may be limited or removed if an instructor feels that students are sending inappropriate electronic messages to other students in the course.

Religious Accommodations for Students:

Students who need to be absent from class due to the observance of a religious holiday or participate in required religious functions must notify the faculty member in writing as far in advance of the holiday/obligation as possible. Students will need to identify the specific holiday or obligatory function to the faculty member. Students will not be penalized for missing class due to religious obligations/holiday observance. The student should contact the class instructor to make arrangements for making up tests/assignments within a reasonable time.

