EXPANDED COURSE DESCRIPTION

School of the Arts, Media, Performance and Design
Design Department
FA / YSDN 4009 3.0 SECTION M
INTERACTIVE OBJECTS AND ENVIRONMENTS
FALL 2019 / WINTER 2020

Last Modified Date: 01/09/2020

COURSE CALENDAR DESCRIPTION

Introduces students to theories and practices of communication design for interactive environments. Interaction scenarios and user experience will be explored through alternative interfaces using sensors, and other inputs to control projected video, graphics, and sound. Prerequisite: FA/YSDN 3009 3.00 or permission of the Department of Design. PRIOR TO WINTER 2013: course credit exclusion: FA/YSDN 4001C 3.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talaie, Borzu</td>
<td>Sec. M / STDO / W</td>
<td><a href="mailto:borxu@yorku.ca">borxu@yorku.ca</a></td>
<td></td>
</tr>
</tbody>
</table>

SPECIAL FEATURES

York University / Sheridan College Program in Design
Course: FA/YSDN 4009 3.00 – Interactive Objects and Environments
Course Website: TBA
Term: Winter 2020
Prerequisite / Co-requisite
FA/YSDN 3009 3.0 Time-based Communication or permission of the Department of Design.
Course Instructor(s), Time and Location
York
Course Director: Borzu Talaie borxu@yorku.ca
Office Hours: By appointment only
Section M: Tuesday 8:30-12:30 4028 DB
Course Description
This course introduces students to theories and practices of communication design for interactive environments. Interaction scenarios and user experiences will be explored through alternative interfaces using sensors and other inputs to control actuators, projected video, graphics, and sound.
Expanded Course Description
This course introduces students to theories and practices of communication design mediating the interactions between digital and physical environments, interactive devices, audience interaction, and sensorial interfaces.
Students are introduced to principles of physical computing and experiment with electronics, microcontrollers, sensors and programming environments to design and create informative content for interactive communication experiences. Some of the topics covered in this course include:

- **Electronics**: basic terminology, microcontrollers (Arduino), electronic components, circuits, and wireless communications
- **Sensors**: touch, force, presence, motion, distance, light, position, orientation, sound, temperature, etc.
- **Actuators**: solenoid, servo, motors, switch, valve, etc.
- **Programming Environments**:
  - **Arduino**: an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software; it’s intended for artists and designers interested in creating interactive objects and/or environments
  - **Processing**: an open source programming language and environment for learning, prototyping and production; it introduces fundamentals of computer programming within a visual context and serves as a software sketchbook and/or a professional production tool to program images, animation, and interactions
  - **Computer Vision (video tracking)**: real-time video capturing and processing, detecting presence, motion, location, position, colour, value, etc.

### Course Learning Objectives

Through research, planning, design, and implementation of interactive physical interfaces, students broaden their knowledge of visual communication design beyond traditional print and screen-based mediums.

Upon completion of this course, students will be able to:

- Learn an iterative development methodology based on prototyping and testing
- Assess and implement technologies necessary for taking a project idea from concept to completion
- Understand the basic principles and techniques needed to incorporate electronic circuits
- Develop code literacy to understand and apply programming concepts
- Integrate and extend principles and practices across the design field
- Articulate individual ideas in visual, oral and written forms
- Undertake independent creative and technical learning and research
- Collaborate with peers to develop collective knowledge and skills

Note: This is a general outline only. It may be changed to suit the development of assignments.

### Course Schedule

Refer to the course website for weekly schedules. Any changes to the schedule will be announced in the class and/or posted on the course website.

### Required Course Text / Readings


### Other Resources

Supplementary course materials and case studies in print and/or digital format are available in the Scott Library at York, Sheridan Library, owned personally by the instructor or online – Safari Books (requires Sheridan Library account); complete access to LinkedIn Learning courses (through York University Portal). The instructor will list these resources as determined by the class activities.

### Required Material(s)

Some specific materials may be required for completion of projects. Their cost will vary depending on
the materials and techniques chosen by a student. Students will also need digital data storage devices such as USB flash drives and/or portable hard drives to regularly backup their work. Students also need access to the digital-locker server at York University.

Proper Use of Facilities
Use of the YSDN facilities and equipment is for proper completion of assigned projects only. Privileges may be withheld for improper use. Lateness or incomplete work due to the loss or suspension of privileges is not an acceptable reason for missed deadlines. Students under suspension of privileges must find alternative means to complete projects.

Evaluation
This course will consist of a combination of lectures, research assignments, hands-on tutorials and creative production of projects. Emphasis will be placed on the exploration of the contextual meanings of interactive design, visual syntax, visual expression, and documentation of the design process. When grading individual projects and assignments, you will be graded on the following four distinct aspects of the work:

1. Concept and Ideas – their originality and relevance to the problem. Lateral Thinking abilities, analysis of project requirements, understanding of the parameters, goals, and objectives.
2. Refinement of the Concept – the ability to take the original idea(s) and further develop/improve and apply them. Vertical Thinking abilities, critical evaluation of ideas and solutions.
3. Skills – translation of ideas to visually & technically refined forms, demonstrated throughout the design process from early sketches to the finished state.
4. Presentation – the ability to communicate (visually, verbally and in written form) the systematic and logical direction your synthesis of the problem-solving process has taken. Appropriateness of the final visual resolution of the project or exercise.

Grading
The final grade for the course will be based on the following items weighted as indicated:

- Exercises 10%
- Project 1 15%
- Project 2 25%
- Project 3 25%
- Presentation(s) 20%
- Attendance & Participation 5%

A grade will be provided after each phase of the project is completed. See online project descriptions for details.

Course grades and continuing success in the course will be significantly affected by frequent lateness and absence; coming to class unprepared to participate in the critiques and presentation of studio work; and late submission of projects.

Note: Final course grades may be adjusted to conform to program or faculty grades distribution profiles.

Grading Scheme and Feedback Policy
Senate Grading Scheme and Feedback Policy stipulates that (a) the grading scheme (i.e. kinds and weights of assignments, essays, exams, etc.) be announced, and be available in writing, within the first two weeks of class, and that, (b) under normal circumstances, graded feedback worth at least 15% of the final grade for Fall, Winter or Summer Term, and 30% for full-year courses offered in the Fall/Winter Term be received by students in all courses prior to the final withdrawal date from a course without
receiving a grade.

No examinations or tests collectively worth more than 20% of the final grade in a course will be given during the final 14 calendar days of classes in a term. The exceptions to the rule are classes which regularly meet Friday evenings or on Saturday and/or Sunday at any time, and courses offered in the compressed summer terms. See the policy for exceptions http://secretariat-policies.info.yorku.ca/policies/grading-scheme-and-feedback-policy/

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.). For a full description of York grading system see Faculty Rules under the York University Undergraduate Academic Calendar https://calendars.students.yorku.ca/2019-2020/programs/design

Students may take a limited number of courses for degree credit on an ungraded (pass/fail) basis. For full information on this option see Faculty Rules, Grading and Academic Standards under the York University Undergraduate Academic Calendar https://calendars.students.yorku.ca/2019-2020/programs/design

To review and manage your academic records visit http://myacademicrecord.students.yorku.ca

<table>
<thead>
<tr>
<th>Grade / Grade Point / Percent / Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+ 9 90 – 100% RARE AND EXCEPTIONAL WORK</td>
<td></td>
</tr>
<tr>
<td>A 8 80 – 89% EXCELLENT WORK</td>
<td></td>
</tr>
<tr>
<td>B+ 7 75 – 79% VERY GOOD WORK</td>
<td></td>
</tr>
<tr>
<td>B 6 70 – 74% GOOD WORK</td>
<td></td>
</tr>
<tr>
<td>C+ 5 65 – 69% COMPETENT WORK</td>
<td></td>
</tr>
<tr>
<td>C 4 60 – 64% FAIRLY COMPETENT WORK</td>
<td></td>
</tr>
<tr>
<td>D+ 3 55 – 59% PASSING WORK</td>
<td></td>
</tr>
<tr>
<td>D 50 – 54% POOR WORK</td>
<td></td>
</tr>
<tr>
<td>E 1 31 – 49% VERY POOR WORK</td>
<td></td>
</tr>
<tr>
<td>F 0 0 – 30% INADEQUATE WORK</td>
<td></td>
</tr>
</tbody>
</table>

All courses taken at York and Sheridan, including failures, are included in grade point average calculations. To calculate your Grade Point Average visit https://ampd.yorku.ca/current-students/academic-resources/gpa-calculator/

Assignment Submission
Proper academic performance depends on students doing their work not only well but on time. Accordingly, assignments for this course must be received on the due date specified for the assignment. Assignments are to be handed in class or submitted online on the appropriate date. At York and Sheridan, the administrative offices will NOT accept drop-off of student work. In the rare case of illness of the instructor on a due date, special arrangements between the course director and the office can be made for the submission of student work.

Lateness Penalty
Assignments received later than the due date will be penalized 10% per business day that the assignment is late. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the course instructor but will require supporting documentation (e.g. a doctor’s letter).

Missed Tests
Students with a documented reason for missing a course project deadline or a test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g. doctor’s letter) may request an accommodation from the course instructor. Further extensions or accommodation will require students to submit a formal petition to the faculty.

Attendance and Lateness
Regular and punctual attendance is a required professional behaviour in industry and therefore in this program. Attendance will be taken at the beginning of each class. Students are responsible for informing their faculty ahead of time if they are going to be late for a class or not attending. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the course instructor but will require supporting documentation (e.g. a doctor’s letter). Students will be responsible for all academic, financial penalties and consequences resulting from their non-attendance.

Last Date to Drop the Course
Friday, March 13, 2020 is the last day that a student can drop this course without receiving a grade. Financial penalties may be involved and could be assessed depending on the precise date that the course was dropped.

To review important university sessional dates such as classes and exams start/end dates, financial deadlines, holidays and more visit https://registrar.yorku.ca/enrol/dates/fw19

Students Responsibilities
1. Always backup/save/archive digital work on at least two different mediums (e.g. a cloud service and a flash drive). Computer hard drives in the labs will be erased of all student files on regular basis.
2. Inform the course instructor – in a timely fashion – of any problems that may interfere with the students’ progress in the class.
3. Read and understand university policies and important course information (see next section).

Academic Policies & Information
The Senate Academic Standards, Curriculum and Pedagogy Committee (ASCP) provides a Student Information Sheet that can be reviewed at http://secretariat.info.yorku.ca/senate/
All students are expected to familiarize themselves with the following information.

Academic Honesty & Integrity
YSDN students are required to maintain high standards of academic integrity and are subject to the Senate Policy on Academic Honesty. For full information visit http://secretariat-policies.info.yorku.ca/
There is also an academic integrity website with complete information about academic honesty. Students are expected to review the materials on the Academic Integrity website at https://www.yorku.ca/tutorial/academic_integrity/.

Occupational Health & Safety
Students must be aware of ergonomic factors related to the course work and should practice recommended exercise to prevent developing occupational related health problems. Refer to the following URL for details https://yulink-new.yorku.ca/group/yulink/health-safety-and-employee-wellbeing

Accessibility/Disability Services
Both York and Sheridan provide services for students with disabilities (including learning, mental health, physical, sensory and medical disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at both institutions.

Students in need of these services are asked to register at both York and Sheridan as early as possible to ensure sufficient advance notice so that appropriate academic accommodation can be provided. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs.

Please note that registering with these services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

At York University
The York Senate Policy on Accommodating Students with Disabilities is available at http://secretariatpolicies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/

Additional information on Counselling & Disability Services is available at http://cds.info.yorku.ca or by contacting the offices of the disability service providers listed below:

- Learning Disability Services
  W128 Bennett Centre for Student Services (BCSS), (416) 736-5383
  http://yustart.yorku.ca/learning-disability-services/

- Mental Health Disability Services
  N110 Bennett Centre for Student Services (BCSS), (416) 736-5297
  http://mhw.info.yorku.ca/organization/mental-health-disability-services-mhds-through-counselling-anddisability-services/

- Physical, Sensory and Medical Disability Services
  N108 Ross Building, (416) 736-5140
  www.yorku.ca/cds/psmds

At Sheridan College
Accessible Learning Services
Trafalgar campus, B104, (905) 845-9430, ext. 8196
www.sheridancollege.ca/life-at-sheridan/student-services/accessible-learning-services

Counselling Services
Trafalgar campus, B104, (905) 845-9430, ext. 2557
www.sheridancollege.ca/life-at-sheridan/student-services/counselling-services

Health Services
Alternate Exam and Test Scheduling
York’s Counselling & Disability Services and the Registrar’s Office work in partnership to support alternate exam and test accommodation services for students with disabilities at the Keele campus. To review the exam and test policies and procedures visit http://altexams.students.yorku.ca

Ethics Review Process
YSDN students are subject to the York University Policy for the Ethics Review Process for Research Involving Human Participants. To review the Senate Policy visit http://secretariat-policies.info.yorku.ca/policies/ethics-review-process-for-research-involving-human-participants-policy/

In particular, students proposing to undertake research involving human participants (e.g. interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an application for Ethical Approval of Research Involving Human Participants at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your course instructor immediately.

Religious Observance Accommodation
York and Sheridan are committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the course instructor within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the course instructor immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form. For more information visit http://altexams.students.yorku.ca/request-an-alternate-exam

Further information on religious observance is available at https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs

Student Code of Conduct
Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect and to refrain from actions disruptive to such a relationship. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. A statement of the policy and procedures involving disruptive and/or harassing behaviour by students in academic situations is available on the York website http://secretariat-policies.info.yorku.ca/policies/disruptiveandor-harassing-behaviour-in-academic-situations-senate-policy/

For more information visit http://oscr.students.yorku.ca

Entering External Design Award Shows and Competitions
In an effort to encourage more students to enter external award shows and competitions, the York/Sheridan Program in Design will reimburse the entry fee for winning entries at outside award shows and competitions, up to $35 (CAD) per piece entered.
To take advantage of this, students must:
• Enter the competition, pay entry fees and postage and arrange for delivery;
• Provide written proof that they have received an award/prize, and
• Provide the original receipts for the entry fee in Canadian Dollars. If the entry fee was paid in another currency, we require a receipt indicating the exact amount you paid in Canadian Dollars.

Note: Students are responsible for any other fees that may be associated with the prize. Please contact Barb Batke (bbatke@yorku.ca) for reimbursement after you receive the award.

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

Moodle @ York University