Class: Course 16.682, also known as Momentum

Credits: 6 units

Level: Undergraduate (first and second year undergraduates)

Prerequisites: None

Lecturers: Marc Graham, PhD (polo@mit.edu); office hours: T, 3-5pm, 26-142, Barbara Hughey, PhD (bhughey@mit.edu), Jane E Kokernak (kokernak@mit.edu)

TAs (office hours): Office Hours begin Thursday, Jan. 12, and end Wednesday, Jan. 31 in 26-142

Exception: 1/20/2018 Office Hours Location is 4-144

Website: Course 16.682 in Stellar (IAP 2018)

Course description

Momentum is a course offered to first and second year students during MIT’s Independent Activities Period (IAP). It is designed to prepare students for a future in the fields of science and engineering. This year, in partnership with Microsoft, we will explore mixed reality to improve information and content sharing by incorporating holographic elements into real life interactions. Students will work in small teams to create an experience that is more impactful or enriching through MR. Throughout the course students receive assistance in resume building, oral presentations, interviewing, and participate in a competition, poster presentation and networking event with industry representatives.

Goals

- Apply basic concepts of deterministic design to frame and develop potential solutions to complex engineering challenges facing the world today.
- Employ an interdisciplinary approach to problem solving by ensuring technical feasibility and considering cultural and social compatibility, economic implications, and environmental impacts of the solutions that they generate.
- Develop teamwork, communication and professional skills.

Course Structure

- Lectures (3-5pm)
  - 1/8/18 in 4-153 – Intro to Unity
  - 1/9/18 in 4-153 – Deterministic design, Project Management
  - 1/10/18 in 4-153 – Intro to Mixed Reality Immersive Headset
  - 1/11/18 in 4-153 – Intro to C#
  - 1/12/18 in 4-153 – Lecture (TBD)

- Workshops
  - 1/19/18 in 4-163 at 11:00am – Poster Presentation Workshop
  - 1/18/18 in 4-145 at 12:00pm – GECD Interviewing Workshop
  - 1/24/18 in E19-202 at 10:00am – GECD Mock Interviews Group A
- 1/24/18 in E19-202 at 1:00 pm – GECI Mock Interviews Group B
- 1/23/18 in 4-145 at 11:00am – Public Speaking Workshop Group A
- 1/23/18 in 4-261 at 3:00pm – Public Speaking Workshop Group B
- 1/24/18 in 4-145 at 1:00pm – Public Speaking Workshop Group C

- **Progress check-ins** (Each team will choose a 30-minute timeslot)
  - 1/16/18 in 4-144 from 2:30pm-7:30pm – Design Reviews
  - 1/25/18 in 2-105 from 2:00pm-7:00pm – Progress Reports

- **Poster Presentation, Competition, and IACME Mixer**
  - 2/1/18 in Media Lab from 10:00am-6:30pm – Poster Presentation/Competition and IACME Mixer

**Grading**

Grades will be assigned to each student based on participation and performance on the following:

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lecture Attendance</td>
<td>25%</td>
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<tr>
<td>Poster Presentation and Competition</td>
<td>25%</td>
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<tr>
<td>Workshop Attendance</td>
<td>10%</td>
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<tr>
<td>Survey Completion*</td>
<td>10%</td>
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<tr>
<td>Peer Review^</td>
<td>10%</td>
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<tr>
<td>Design Review</td>
<td>10%</td>
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<tr>
<td>Progress Report</td>
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*All participants complete a skills survey at the beginning of the course that will help the staff form teams and an exit survey at the end of the course to allow students to provide feedback.

^Peer Reviews will be completed anonymously and will provide a space to give feedback to all team members. Each student will complete a peer review for each of his/her team members; likewise, each student will receive a peer review from his/her team members. Participation in the feedback will count towards the student’s overall grade.

**Resources**

- **Momentum Store** – Each team will get a $150 budget to purchase components needed for their project. Purchases will be made online using a purchase form. Teams can start placing orders on Friday, January 12. The link for the purchase form can be found in the Stellar website.

- **Communications Lab** - The MIT School of Engineering Communication Lab is a discipline-specific peer-coaching resource established to help students with their scientific writing, speaking, and visual design. Our trained graduate student and postdoc fellows offer individual coaching to help at all stages of the writing and design process - from brainstorming to final editing. Make an appointment with the EECS, ChemE, NSE, or BE Communication Labs to get individualized feedback on your projects!

- **Libraries** – For support in finding resources about virtual reality, education and other topics, please feel free to contact the librarians for this course: Courtney Crummett (crummett@mit.edu), Sofia Leung (sofial@mit.edu) and Phoebe Ayers (psayers@mit.edu). You can also find some books and databases for finding research articles at the library webpage for this course: [http://libguides.mit.edu/momentum](http://libguides.mit.edu/momentum)

**Contact Information**

For technical and lecture-related questions please contact Marc Graham at polo@mit.edu, Sarah Bricault sbricau1@mit.edu or any of the TAs for the course. For any other questions please contact: Deolinda Branch (drodrigui@mit.edu), Devan Monroe (monroed@mit.edu) or come by the Office of Minority Education in 4-107.