האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

FUTURE REALITIES - XR & INTELLIGENT TECHNOLOGIES & SCIENCE FOR INNOVATION ART - 67499

Last update 03-09-2020

HU Credits: *4*

Degree/Cycle: *1st degree (Bachelor)*

Responsible Department: *Computer Sciences*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Yair Bartal*

Coordinator Email: *yair_bartal@hotmail.com*

Coordinator Office Hours: *With coordination*

Teaching Staff:
Prof Yair Bartal

Course/Module description:
"Future Realities" is a course of the Hebrew University, Bezalel and the Music and Dance Academy, with participation of additional art and design institutes, with support of the Jerusalem Development Authority, and cooperation of industry including: tel, Magic Leap, Lightricks, and more.

The appearance of new "reality changing" technologies, which place us within different worlds, modifying the world around us, and enable creation of new and familiar realities, is opening unlimited possibilities for applications, as well as raising question regarding their influence on humanity and human perception.

The course deals with these issues which lie in the border of the fields of science and technology and art and design.

The course will mainly focus on understanding novel aspects of XR (Extended Reality) technologies - VR/AR/MR (Virtual Reality/Augmented Reality/Mixed Reality), and additionally the course will expose the students to complementary topics such as Artificial Intelligence and technologies that enable creating a full multi-perceptual experience, such as EEG, 3D printing, interactive internet technologies, human-machine interfaces, sensors, etc.

The course is guided by Prof. Yair Bartal in collaboration with guest lecturers from academia and industry.

The main goal of the course is the creation of a joint art/design work by collaboration in an interdisciplinary group, where each student contributes from their own expertise.

The final projects are planned to be presented in an exhibition. Additionally, the best projects of the course will be given opportunities to participate in prestigious conferences and exhibitions.

Course/Module aims:
Exposing the students to advanced technologies and their applications through art and design, and create high quality projects.

Learning outcomes - On successful completion of this module, students should be

able to:
Understand various aspects of XR - VR/AR/MR technologies
Work in a Unity environment

Work effectively in an integrated multidisciplinary team
Create innovative, high-level multidisciplinary projects

Attendance requirements(%):
90

Teaching arrangement and method of instruction: Lecture & Practice/Lab

During the semester workshops for Unity and Belnder will be given

Course/Module Content:
Spatial Computation - XR - AR, MR, VR:
Principles of Spatial Computing, Spatial and Immersive Environment, Connecting the Virtual World to the Real World, Embodiment, Creating Interactive Content and HCI Aspects.

Workshops - Unity
VR SDK for Unity
Blender (for Bezalel students, optional only for HUJI students)

Required Reading:
N/A

Additional Reading Material:

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 10 %
Project work 45 %
Assignments 20 %
Reports 15 %
Research project 0 %
Quizzes 0 %

Other 10 %
Evaluation

Additional information:
https://futurexrealities.wixsite.com/2019

The course is joint with Bezalel and a number of classes will be held there as necessary.
Course Hours: 14:30 - 18:30.

In the second half of the semester, two mini-hackaton events will be held for concentrated work on the final projects.
Submissions in the course will include interim submissions throughout the semester, and submission of a concluding project at a later date after the exam period. Exact dates will be announced at the beginning of the semester.

For deepening it is recommended to register also to the course 67879 (lab for students in 3rd year and over or grad).

For further info please contact:
futureXrealities@gmail.com