



MBL 617E Special Topics in Architectural Design Computing (3+0)
Theory and Methods in Digital Heritage

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Mondays 13.30-16.30

Content: The course is an introduction to **Digital Heritage** and has a two-fold purpose. In addition to giving an overview of theories and principles in digital heritage, both in Turkey and internationally, the course gives an introduction to research methods in three areas related to cultural heritage: **collection/management, visualization/communication, and analysis/ interpretation.**

Aims: To help students understand the link between cultural heritage and computing; to introduce key issues in digital heritage; to provide students with the basic theoretical and practical knowledge of digital methods such as GIS, AR/VR, AI.

Learning outcomes: Students who take this course gain will knowledge, ability and proficiency in the following subjects:

- Knowledge of historical, contemporary and specialized issues in the area of visual computation through original research,
- Understanding of the interdisciplinarity of computation in cultural heritage,
- Ability to assess methods and applications of digital heritage through systematic approaches,
- Ability to assess and apply research methodology,
- Competence in creative and critical thinking, problem-solving and decision making.

Conduct: The course will be conducted as seminars with weekly readings and assignments. During the course of the semester, students are required to submit written and practical assignments as requested by the instructors during class, and one final paper, based on either literature research or an original argument, and an in-class presentation of the final paper at the semester end. The essays submitted throughout the semester are to constitute the basis for the final paper; these should take into account class discussions, as well as students' own reflections. The final paper should be around 3000 words and structured with an introduction, development, and conclusion. The grading for the course is as follows: attendance and in-class participation in discussions and weekly response papers, 30%; hands-on practices, 30%; one end-of-semester paper, 20%; final project presentation by individual/group 20%.

Project: The collective efforts of the course participants will be part of a digital heritage project on Caravanserais of Anatolia. **All works will be uploaded to the website.**

Weekly Schedule:

WEEK	DATE	TOPIC	TITLES	Grades
1	10 Feb 2020	Introduction and discussion on the course	Introduction	5
2	17 Feb 2020	Definition Terms, Theoretical Background	Digital Humanities	5
	Reading Assignment	<p>Hayles, N. K. (2012). How We Think: Transforming Power and Digital Technologies. <i>Understanding Digital Humanities</i> (pp. 42-66). Palgrave Macmillan, London. https://link.springer.com/chapter/10.1057/9780230371934_3</p> <p>Berry, D. (2011). The Computational Turn: Thinking about the Digital Humanities (pp. 1-22). <i>Culture Machine</i>, 12. http://sro.sussex.ac.uk/id/eprint/49813/</p> <p>Presner, T. (2010). Digital Humanities 2.0: A Report on Knowledge. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.469.1435&rep=rep1&type=pdf</p>		
Tool for W3-4		QGIS, https://www.qgis.org/en/site/		
3	24 Feb. 2020	Practical Session on GIS	Geographic Information System	10
	Practical Assignment	Setting up a GIS online database of Caravanserais, data entry of the existing literature into GIS.		
	Readings, Examples, Tutorials	Gregory, I. N., & Geddes, A. (2014). <i>Toward Spatial Humanities: Historical GIS and Spatial History</i> . Indiana University Press.		
4	2 March 2020	Practical Session on Data Types	Data Types	
	Practical Assignment	Adding additional data layers with various data types		
	Readings, Examples, Tutorials	Ferreira-Lopes, P., & Pinto-Puerto, F. (2018). GIS and Graph Models for Social, Temporal and Spatial Digital Analysis in Heritage: The case-study of Ancient Kingdom of Seville Late Gothic Production. <i>Digital Applications in Archaeology and Cultural Heritage</i> , 9.		
5	9 March 2020	Theoretical Discussions on Digital Heritage	Digital Heritage	5
	Readings	<p>Kalay, Y., Kvan, T., & Affleck, J. (2008). <i>New heritage. New Media and Cultural Heritage. London and New York: Routledge.</i></p> <p>Charter on the Preservation of the Digital Heritage, 2009, https://unesdoc.unesco.org/ark:/48223/pf0000179529.page=2</p>		
6	16 March 2020	Theoretical Discussions on Heritage Projects	Documentation and Visualization of Cultural Heritage	5
	Readings	<p>Cameron, F., & Kenderdine, S. (2010). <i>Theorizing Digital Cultural Heritage: A Critical Discourse</i>. Cambridge: The MIT Press</p> <p>Varinlioğlu, G. (2016). <i>Digital in Underwater Cultural Heritage</i>. Cambridge Scholars Publishing.</p> <p>Presner, T., Shepard, D., & Kawano, Y. (2014). <i>Hypercities Thick Mapping in the Digital Humanities</i>.</p>		
Tools for W7		Web tools, HTML, Javascript, CSS , Gephi, https://gephi.org/		

7	23 March 2020	Practical Session on the Visualization of Cultural Heritage	Documentation and Visualization of Cultural Heritage	5
	Practical Assignment	Visualizing data from the Caravanserai database		
	Readings, Examples, Tutorials	Hypercities, Retrieved from https://www.hypercities.com Senseable City Lab, Retrieved from http://senseable.mit.edu		
	HW	Model one caravanserai of your area of research.		5
8	30 March 2020	HOLIDAY		
9	6 April 2020	Theoretical Discussions on Heritage Interaction: Game, AR, VR	Interaction	5
	Readings	<p>Portman, M. E., Natapov, A., & Fisher-Gewirtzman, D. (2015). To Go Where No Man Has Gone Before: Virtual reality in Architecture, Landscape Architecture and Environmental Planning. <i>Computers, Environment and Urban Systems</i>, 54, 376-384.</p> <p>Wang, X., Kim, M. J., Love, P. E., & Kang, S. C. (2013). Augmented Reality in Built Environment: Classification and Implications for Future Research. <i>Automation in Construction</i>, 32, 1-13.</p> <p>Luna, U., Rivero, P., & Vicent, N. (2019). Augmented Reality in Heritage Apps: Current Trends in Europe. <i>Applied Sciences</i>, 9(13), 2756.</p>		
10	13 April 2020	Theoretical Discussions on Heritage Projects	Interaction	5
	Readings	<p>Varinlioğlu, G., Alankuş, G., Aslankan, A., & Mura, G. (2019). Oyun Tabanlı Öğrenme ile Dijital Mirasın Yaygınlaştırılması. <i>METU Journal of the Faculty of Architecture</i>, 36(1).</p> <p>Varinlioğlu G., (2019). Teos Üzerinden Dijital Mirasta Sanal Gerçeklik Uygulamalarını Anlamak. <i>Megaron (yayında)</i>. Retrieved from: http://www.megaronjournal.com/jvi.aspx?pdir=megaron&plng=eng&un=MEGARON-85619</p>		
	Tools	Unity Tutorials, Retrieved from https://unity.com/learn SparkAR, Retrieved from https://sparkar.facebook.com/ar-studio/ Sketchfab, Retrieved from https://sketchfab.com/		
11	20 April 2020	Practical Session on Interaction Tools	AR/VR Development Frameworks	10
	Practical Assignment	Testing the software		
	Readings	TBA		
12	27 April 2020	Practical Session on AR/VR	AR/VR Development Frameworks	
	Practical Assignment	Finalize a heritage AR/VR project		
	Readings	TBA		
13	4 May 2020	Special Topics	AI, Biointelligence	
	Readings	Evangelidis, V., Jones, J., Dourvas, N., Tsompanas, M. A., Sirakoulis, G. C., & Adamatzky, A. (2017). Physarum Machines Imitating a Roman Road Network: the 3D Approach. <i>Scientific Reports</i> , 7(1), 1-14.		
14	11 May 2020	Presentations and discussion of term paper/project		20
15	18 May 2020	Presentations and discussion of term paper/project		
16	FINALS	Overall Evaluation / Term Paper Submission		20