

BOĞAZIÇI UNIVERSITY

Department of Civil Engineering

58Z: Global Virtual Design and Construction

SYLLABUS

NOTE: This syllabus is subject to change. Any changes will be communicated in advance.

COURSE: Global Virtual Design & Construction [3 credits]
See Detailed Course Schedule for Class Meeting Times
M 2231
Office Hour: Monday 17:00-18:00

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COURSE OVERVIEW:

This course is designed to acquaint students with issues relating to working on and leading globally distributed projects in the increasingly global design and construction industry. Even solely domestically operating design and construction firms are facing global issues as increasing competition is bringing global competitors to domestic markets. Design and construction projects are dynamic and uncertain, requiring considerable coordination, communication and leadership to execute. Yet, coordination, communication and leadership become increasingly difficult in a global virtual project environment. In this course we will examine the theory and practice of working in globally distributed teams to understand and address the challenges of coordination, communication and leadership. Theory will be presented in a unique global theory discussion series involving professors from several participating universities around the world. We will discuss the practice of working globally through case study discussions and through a semester-length virtual collaboration team project that students will complete together with students from collaborating universities. In the semester project, students will experience first-hand the challenges posed by geographically distributed work and work collaboratively to develop innovative strategies for overcoming these challenges.

COURSE LEARNING OBJECTIVES:

- Students will develop skills to communicate, coordinate and lead effectively in global virtual design and construction projects.
- Students will be exposed to a variety of practical issues relating to working globally and across cultures in assigned case studies.
- Students will develop a theoretical understanding of global scale project coordination, communication and leadership issues.

- Students will experience working in and leading a geographically distributed virtual team executing a complex design task and will reflect on those experiences by coupling theoretical understandings developed in the course.

PRACTICE

The following suggested articles and case studies are available at the Harvard Business School Publishing Web site [<http://harvardbusinessonline.hbsp.harvard.edu/hbsp/index.jsp>]. We will decide the format of the case discussions and case write-ups in class.

1. Reeves, B. and Read, J. (2009). "Virtual People: How Avatars—and the Online Games and Virtual Worlds They Inhabit—Improve Employee Engagement and Efficiency." Harvard Business School Publishing, Product Number 5473BC.
2. Applegate, L. and Knoop, C. (1997). "Colliers International Property Consultants, Inc.: Managing a Virtual Organization." Harvard Business School Publishing, Product Number 396080.
3. Kalla, A., and Kumar, S. (2007). "Managing Virtual Teams." Harvard Business School Publishing, Product Number UV0803.
4. Pedersen, T., Pyndt, J. and Nielsen, B. (2008). "Coloplast A/S – Organizational Challenges in Offshoring." Harvard Business School Publishing, Product Number 908M31.

THEORY: Research Critique Write-up

Students in the class will work in semester project teams to prepare a written report and be prepared to discuss their critique of academic papers on a course-related topic. This effort is intended to expand your theoretical understanding of global design and construction issues and global virtual project execution. *The critique write-up should be a maximum of 2 pages in length.* Like the Case Study write-ups, this is not expected to be completed in the CyberGRID since you will be working only with your local team-mates. The critique should examine; the research questions addressed, the research methodologies employed, the key conclusions/findings of the paper, the significance of the paper to practice, and the impact the paper has or can have on theory. At the end of the theory paper please include a well-reasoned question that you might ask the author in the global theory discussion when the author presents the paper. *Spend no more than 25% (half a page) of your effort summarizing the papers;* I am primarily interested in your critical analyses, not summarization. Grading will be based on the quality, clarity, insightfulness, professionalism, and thoroughness of the write-up. The discussion component will uniquely involve several universities around the world in a global discussion of the theoretical articles presented. The degree to which you engage in the global theory discussion about the theory papers will have a significant impact on your class participation grade. We will be discussing the following papers (**presenter(s) marked in bold**):

1. **Iorio, J., and Taylor, J.** (in revision). "Precursors to transactional, transformational and technological leadership behaviors in virtual project teams," *International Journal of Project Management*.
2. **Alin, P., Iorio, J. and Taylor, J.** (2013). "Digital Boundary Objects as Negotiation Facilitators: Spanning Boundaries in Virtual Engineering Project Networks," *Project Management Journal*, 44(3): 48-63.
3. Ramalingam, S. and **Mahalingam, A.** (2011). "Enabling conditions for the emergence and effective performance of technical and cultural boundary spanners in global virtual teams," *Engineering Project Organization Journal*, 1(2), 121-141.

4. **Comu, S.**, Iorio, J., Taylor, J. and Dossick, C. (2013). "Quantifying the Impact of Facilitation on Transactive Memory System Formation in Global Virtual Project Networks," *ASCE Journal of Construction Engineering and Management*, 139(3): 294-303.
5. Polzer, J., Crisp, C.B., Jarvenpaa, S., and **Kim, J.** (2006). "Extending the Faultline Model to Geographically Dispersed Teams: How Colocated Subgroups Can Impair Group Functioning In Academy of Management Journal, 49(4): 679-692. (this presentation is not confirmed)
6. **Hartmann, T.** (in preparation). "Semiotics in Virtual Teams." (to be determined and distributed during the semester)
7. **Anderson, A.**, and **Dossick, C.S.** (in preparation). "Using Avatars to Support Discovery." (to be determined and distributed during the semester)

INTEGRATING PRACTICE AND THEORY: Virtual Team Project Report/Presentation

Teams of Bogazici University students will be assigned for a semester team project. BU student teams will work together with comparably sized teams of students at the University of Washington in Seattle, Virginia Tech, the University of Twente in the Netherlands and the Indian Institute of Technology – Madras in India. The purpose of the project is to give you an opportunity to increase your understanding of global virtual project execution with an emphasis on leading such endeavors. The project requires a written report, a set of interim deliverables, and an oral presentation.

Your team will be responsible for analyzing the safety of the proposed construction work. A 3-D CAD model of the project will be developed by your team-mates at the Indian Institute of Technology in Madras. VT students will lead the globally distributed teams and also develop the schedule of the project. The UW-Seattle students will be responsible for creating a 4-D CAD model of the project by combining the schedule with the 3-D CAD model. The University of Twente students will be responsible for developing the cost estimate for the project. The overall project is focused on identifying critical project bottlenecks before they occur and addressing them through interventions in the schedule, 3-D, cost, safety and 4-D CAD models.

Team reports should be a maximum of 20 pages (including all appendices and including the work of your distributed teammates). Reports should be double-spaced, should have 1" margins, and use a 12 point font size. In addition to the correctness, insightfulness, referencing, and thoroughness of your analysis, you will be evaluated on the professionalism of your written presentation. Teams members are expected to contribute equally to this project. In cases where specific members of the team do not contribute their share of the work, the written report should contain a statement to this effect. Please include a section in the project report about how you managed the execution of this global virtual team project, how you managed collaboration or communication difficulties in the global virtual team, how you exploited or resolved them, and how you would do the project differently next time. Teams should also relate their project experiences back to the papers and cases discussed in class.

Bogazici University student teams (not global teams) should also submit a maximum of 2 page document describing insights you learned from leading the globally virtual team, anything that surprised you about the global virtual team leadership process, any best practices or issues that arose, and a summary of lessons learned.

Teams should also prepare a *presentation of a maximum of 15 minutes*. This presentation will take place in the CyberGRID. This is to be presented around the final week of classes at a time to be determined. In addition to the correctness and thoroughness of your presentation, you will be evaluated on the professionalism of your oral presentation. Your classmates will also prepare a peer evaluation of your presentation which will influence the presentation grades. Team reports and presentations must be submitted on time in order to receive full credit.

STUDENT EVALUATION/GRADING:

Grade components will be weighted as follows in computation of the final course grade:

PRACTICE: Case Write-ups	15%	[5% for each of 3 case write-ups]
THEORY: Critique Write-ups	35%	[5% for each of 7 summaries]
SEMESTER TEAM PROJECT	45%	[35% report, 10% presentation]
PARTICIPATION	5%	[instructor's discretion based on meeting & discussion participation]

POLICIES:

Honor Code: Academic Integrity is expected of all students at all times. Bogazici University Honor Code applies to all work in this class, including homework and examinations. Suspected violations of the Honor Code will be immediately referred to the Undergraduate Honor System for adjudication.

Assignments: Assignments are due at the beginning of the class period on the due date assigned, unless otherwise indicated. Assignments will NOT be accepted for credit or graded if late unless an excused absence occurs on the day the assignment is due. Assignments must be legible and well organized to receive full credit.

Office Hours: Students are encouraged to make use of Instructor office hours as needed. Please keep two general principles in mind: **(1) make sure you have read the material and attempted the work prior to seeking assistance** and **(2) it is better to ask for help earlier than later.**

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DETAILED COURSE SCHEDULE

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Date	TOPIC	CyberGRID SEMESTER PROJECT	PRACTICE	THEORY
2/3	Global Theory Discussion Intro to Course & CyberGRID	Familiarization, Team-building		Read Paper 1
2/10	Review of Safety Management	Project Planning & Design	-	Report on Assigned Paper 1
2/17	Global Theory Discussion	3-D Modeling	-	Read & Report on Assigned Paper 2
2/24	No Class	Project Scheduling	-	-
3/3	Global Theory Discussion	4-D Modeling	-	Read & Report on Assigned Paper 3
3/10	No Class	Cost Modeling	Case Report-1	-
3/17	Global Theory Discussion	Safety Analysis	-	Read & Report on Assigned Paper 4
3/24	No Class	Identify/Test Interventions	Case Report-2	-
3/31	Global Theory Discussion	Identify/Test Interventions	-	Read & Report on Assigned Paper 5
4/7	No Class	Submit Report, Presentation Prep	Case Report-3	-
4/14	Global Theory Discussion	Present Project	-	Read & Report on Assigned Paper 6
4/21	SPRING BREAK	☺	☺	☺
4/28	Global Theory Discussion & Practice	-	Case Discussions	Read & Report on Assigned Paper 7
5/5	Practice & Course Wrap-up	-	Case Discussions	-