CE 592 (3 Credits): Global Construction Engineering and Management Practices

FALL 2014

INSTRUCTOR: Dr. Edward J. Jaselskis, P.E., Ph.D.
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MEETINGS: Mondays or Wednesdays 8-11 am EST (note that most lectures will be on Monday and that the actual in-class time will be between 1.5-2 hours due to the use of pre-recorded lecture material).

LOCATION: 406 Mann Hall

OFFICE HOURS: Monday and Wednesday from 3-4 PM, or by appointment.

WEB PAGE: Each participating university will manage a separate web page for this course. The following URLs allow NC STATE students to access different components of the course:

- **Engineering Online Course:**

- **Moodle learning management system** *(with links to Piazza and e-Reserves)*
  - Log into Moodle at: [http://wolfware.ncsu.edu](http://wolfware.ncsu.edu) and find the link for CE 592-001, 601 course site. Students who are new to the Moodle learning management system should complete the tutorial at: [http://go.ncsu.edu/learningwithmoodle](http://go.ncsu.edu/learningwithmoodle)

- **Recorded Lectures**
  - NC State students can access the Mediasite lecture recordings from a direct link within Moodle.

- **e-Reserves**
  - There is a link to the course electronic reserves in the Library Tools section of the Moodle course site. The direct link is [http://reserves.lib.ncsu.edu/](http://reserves.lib.ncsu.edu/). NCSU students in both sections can access these assigned readings by logging in with their Unity ID & PW.
The discussion forum will be available to students from ALL participating universities:

- **Piazza** is a full-featured discussion forum that will be used for ALL students to post questions and receive answers [includes NCSTATE, IIT-Madras, and Tianjin].
  - Students will receive an email invitation from Piazza.com with information on how to connect to the Piazza site. For NCSU students there will also be a direct link to Piazza from within the Moodle course site. NC STATE students can contact the TA or EOL support person: Dede Nelson (dede_nelson@ncsu.edu) with questions regarding access to Piazza.

**COURSE BACKGROUND**

*Construction is truly a global business.* It is common to find that design is simultaneously performed in different countries (24/7 design); material is procured from sources around the globe; and construction is performed by a workforce that is multicultural, multilingual, and multinational. Because of these characteristics those involved with this profession need to embrace this reality and become more aware of the various design and construction practices found throughout the world. This course provides students with such a global awareness by revealing construction practices and innovations found in different countries—both developed and emerging. To introduce this global awareness, unique construction perspectives will be offered by a consortium of universities located in China (Tsinghua and Tianjin), India (IIT-Madras), and the U.S. (North Carolina State University). Special topic lecturers will present practices found in other parts of the world including Panama, Europe, Africa, and Chinese Taipei. See Appendix A for the biographies of the course organizers.

**COURSE CONTENT**

This course includes a series of guest lectures, student presentations on construction practices found in their respective countries, and a collaborative term project. Guest speakers include industry practitioners and academics speaking on topics such as global construction challenges, procurement issues, legal aspects, international finance and public private partnerships, leadership, industry best practices, and lean construction techniques.

**TEXT**

The primary text book for this class is *Global Engineering and Construction*, by Dr. J. K. Yates, John Wiley & Sons, Inc., 2007. ISBN: 471743828. Other readings are included in e-Reserves and will not need to be purchased.
COURSE OBJECTIVES

- Describe the differences and challenges of constructing projects in other countries
- Apply principles of contracting and legal issues in a global setting
- Debate various techniques for financing international projects such as through public private partnerships
- Collaborate on a multinational team to solve a construction problem

CAPTURED LECTURES

- This on campus course will be captured and distributed via the Internet and/or electronic media as part of the Engineering Online (EOL) program for the distance students. These video recordings may contain an image of you entering the classroom, asking a questions or being a part of the studio class. Please notify Dr. Linda Krute, Director of EOL, in writing at ldkrute@ncsu.edu if you DO NOT want your image to be included in the lecture presentation. If we do not hear from you after the first week of the class, we will assume that you are in agreement with this procedure.
## SCHEDULE/READINGS

A detailed schedule with reading assignments and pre-recorded presentation for the NC STATE students is as follows:

<table>
<thead>
<tr>
<th>Lecture/Session</th>
<th>Date</th>
<th>Topic (see Appendix B: Speaker Biographies)</th>
<th>Readings (see detailed Reading list in Appendix C)</th>
<th>Pre-recorded Lectures</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>August 20, 2014</td>
<td>• Overview of course and introduce partner institutions (Jaselskis/Kalidindi/Liu)</td>
<td>• Chapters 1 and 13 (GE&amp;C)</td>
<td>Dr. A. Ramakrishna (32 minutes)</td>
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<td></td>
<td>(Wednesday)</td>
<td>• Course outline and agenda (Jaselskis)</td>
<td>• Additional Readings (See Appendix C)</td>
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<td></td>
<td></td>
<td>• Challenges of constructing projects in a global environment—Mike Gwyn plus two project managers</td>
<td>• First assignment (Jaselskis)</td>
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<td></td>
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<td>• First assignment (Jaselskis)</td>
<td>• Review Discussion Questions</td>
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<td>2</td>
<td>August 27, 2014</td>
<td>• Culture, communication, conflict, and leadership (G.B. Singh)</td>
<td>• Chapter 2 (GE&amp;C)</td>
<td>Dr. Mahalingam (58 minutes)</td>
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<td></td>
<td>(Wednesday)</td>
<td>• NC State leads discussion on “How best to create a harmonious work environment when constructing a project in another country”</td>
<td>• Chapter 24 (The DNA of Leadership)</td>
<td>Dr. Avi Wiezel (60 minutes)</td>
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<td></td>
<td></td>
<td>• Additional Readings (See Appendix C)</td>
<td>• Additional Readings (See Appendix C)</td>
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<tr>
<td>3</td>
<td>September 3, 2014</td>
<td>• Global productivity issues on construction projects (Dr. Varghese)</td>
<td>• Chapter 10 (GE&amp;C)</td>
<td>Dr. Howell (60 minutes)</td>
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<td></td>
<td>(Wednesday)</td>
<td>• IIT-Madras leads discussion on “How to improve worker productivity on global projects”</td>
<td>• Additional Readings (See Appendix C)</td>
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<td>4</td>
<td>September 10, 2014</td>
<td>• Global legal issues for engineers and constructors (Mike Loulakis—video conference)</td>
<td>• Chapters 7 and 11 (GE&amp;C)</td>
<td>Dr. Pin-Chao Liao (27 minutes); Dr. Ghada Gad (30 minutes)</td>
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<td></td>
<td>(Wednesday)</td>
<td>• NC State leads discussion on “How to avoid legal issues on international construction projects”</td>
<td>• Additional Readings (See Appendix C)</td>
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<td>5</td>
<td>September 15, 2014</td>
<td>• Global construction financial techniques (Dr. Kalidindi)</td>
<td>• Chapters 5 &amp; 6 (GE&amp;C)</td>
<td>Dr. Shouqing Wang (41 minutes); Harry Sambell (66 minutes); Emerson Johns (60 minutes)</td>
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<td></td>
<td>(Monday)</td>
<td>• IIT-Madras leads discussion successful implementation of PPP on projects in India</td>
<td>• Additional Readings (See Appendix C)</td>
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<td></td>
<td></td>
<td>Satya to follow up with a finance professor as an additional speaker</td>
<td>• Additional Readings (See Appendix C)</td>
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<td>6</td>
<td>September 22, 2014</td>
<td>• Managing global engineering and construction projects--Chris Rseigh (60 minutes)</td>
<td>• Chapter 3 (GE&amp;C)</td>
<td>Dr. Zhang (50 minutes); Mike Bellamy and Mike Carrancho—(90 minutes)</td>
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<td></td>
<td>(Monday)</td>
<td>• Tianjin leads discussion on “How to successfully manage an international construction project”</td>
<td>• Chapter 3 (GE&amp;C)</td>
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<td>7</td>
<td>September</td>
<td>• International engineering and</td>
<td>• Chapter 8 (GE&amp;C)</td>
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<td>Date</td>
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<td>29, 2014 (Monday)</td>
<td>construction standards, Cliff Schexnayder (prerecord Rodolfo’s lecture today from 9:30-10am) • NC State lead discussion on the need for common standards recognizing the need for differences as well</td>
<td>Chapter 14 (South America and Eastern and Western Europe) (GE&amp;C)</td>
<td>Steve Revay (50 minutes)</td>
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<td>October 6, 2014 (Monday)</td>
<td>• Construction in Central America and Europe (Dr. Valdes-Vasquez—will need to pre-tape week before) • Construction Practices in UK/Ireland (David Comiskey—with use of BIM) • Discuss Term Project (Jaselskis)</td>
<td>Chapter 14 (North America) (GE&amp;C)</td>
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<td>October 13, 2014 (Monday)</td>
<td>• Construction Practices in the United States (Dr. Jaselskis and students from NC State)</td>
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<td>October 20, 2014 (Monday)</td>
<td>• Construction Practices in India (Dr. Kalidindi and students from IITM)</td>
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<td>None</td>
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<tr>
<td>October 27, 2014 (Monday)</td>
<td>• Construction Practices in China and Chinese Taipei (Drs. Liu and Chen and students from Tianjin University)</td>
<td>Chapter 14 (Asia) (GE&amp;C)</td>
<td>Dr. Tserng/Steven Huang (60 minutes)</td>
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<td>November 3, 2014 (Monday)</td>
<td>• Construction Practices in Africa—Dr. David Root (Witwatersrand) • Construction Practices in Germany—Dr. Hans Alfen—Bauhaus Universität Weimar</td>
<td>Chapter 14 (Africa) (GE&amp;C)</td>
<td>Construction practices in Canada (105 minutes)</td>
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<tr>
<td>November 10, 2014 (Monday)</td>
<td>• Safety and other Best Construction Industry Practices (Wayne Crew at 8:30 EST) • Term Project Open Lab (Instructors with students and each university)</td>
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<td>Dr. Fang Dongping (48 minutes)</td>
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<td>November 12, 2014 (Wednesday)</td>
<td>• Group Presentations (students)</td>
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<td>None</td>
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<tr>
<td>November 17, 2013 (Monday)</td>
<td>• Group Presentations and Wrap-up (students and instructors)</td>
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<td>None</td>
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EXAMINATIONS

There will be no examinations for this course. There will be project assignments, however.

PROJECT ASSIGNMENTS

CONSTRUCTION PRACTICES AROUND THE WORLD (40%)

Students at each university will research and present the practices and innovations in their respective countries (e.g., size of industry; construction means and methods; contracting; materials, labor, and equipment issues; cultural differences, project management techniques, and technologies implemented). A standard template will be provided for the report and presentation.

INTERNATIONAL CONSTRUCTION TERM PROJECT (40%)

Students from the participating universities will have an opportunity to work together on a meaningful project and present their findings in a live session. The project will expose students to the unique challenges of working on multi-cultural and lingual teams.

Objective: To engage diverse student teams in understanding the similarities and differences of performing construction in their countries in areas such as contracting, safety, regulations, and code differences.

Methodologies for groups to operate:

- Participating universities collaborate to form a team. A team can have members from two universities, containing a maximum of 4-5 members.
- Each team will select a project similar in scope from their country. (e.g., 10 story residential building, commercial buildings, hospital building, school building, etc.)
- Each team will prepare a document of 10 to 15 pages on the chosen project as it would be executed in their countries on the different criteria such as planning and scheduling, construction methods, contracts, site issues, control measures, productivity issues, safety and regulations.
- The team members of the two countries would then prepare a comparison of the various criteria and identify the similarities and differences in the same type of project executed in both the countries.

Outcome of the assignment:

- Opportunity to work in multinational teams
- Gains insights on the designs, construction practices and the various issues in different countries

Evaluation:

- The teams will be evaluated by the team reports
- The team reports will be jointly evaluated by the faculty from two universities
PROJECT ASSIGNMENTS (cont.)

Independent Report (20%)

**Goal:** To explore an area related to international construction engineering and management so as to gain a deeper understanding and appreciation of this topic; this can be any topic even ones previously discussed in class. Students will be required to prepare a report (~10 pages, 12 pt font, double spaced). The reports will be due at the end of the semester (date to be determined).

SOFTWARE REQUIREMENTS:

Access to a computer with MS Work and Excel.

COMPUTER AND INTERNET REQUIREMENTS

NCSU and Engineering Online have recommended minimum computer specifications. For details refer to the following website: [http://engineeringonline.ncsu.edu/online_courses/how_courses.html#specs](http://engineeringonline.ncsu.edu/online_courses/how_courses.html#specs)
APPENDIX A: LEAD ORGANIZERS

Dr. Edward J. Jaselskis

Dr. Edward Jaselskis is the Jimmy D. Clark Distinguished Professor in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University. Dr. Jaselskis has conducted research in the areas of construction project success and advanced information technologies where his research has led to three patents and numerous publications. He has served as a program director for the National Science Foundation in the area of information technology and infrastructure systems. Dr. Jaselskis is a registered professional engineer in the State of Iowa, member of the Strategic Planning Committee for the Construction Industry Institute, member of the National Academy of Construction, and Executive Committee Member of the Global Leaders Forum for Construction Engineering and Management.

Dr. Satya Kalidindi

Dr. K. N. Satyanarayana is a Professor in the Building Technology & Construction Management Division of the Department of Civil Engineering at the Indian Institute of Technology Madras, Chennai, India. In 2009 he was a Visiting Professor at Iowa State University (USA) during which time this course was conceived. His teaching, research and consulting interests are in the areas of project management, construction contracts, quality management, construction equipment, and public private partnerships. He has published extensively in these areas. He is the recipient of many academic awards. Recently he was presented the PMI India Distinguished Scholar 2011 award. He is a board member of the Institute for Lean Construction Excellence, Vice-Chairman, Board of Advisors of The Glass Academy, and Member of the Academic Advisory Group, Project Management Institute (PMI) India.

Dr. Donghai Liu

Dr. Donghai Liu is a professor of Hydraulic Engineering and Management at School of Civil Engineering, Tianjin University. His areas of research include construction schedule, quality and risk management of hydraulic project using system simulation, optimization and advanced information technologies. He is a member of Underground Space Operation Safety Committee, China Civil Engineering Society (CCES) and also Hydraulic Engineering and Hydraulics Committee, Chinese Hydraulic Engineering Society (CHES).

Dr. Jinyue Zhang (Tianjin University)

Dr. Jinyue Zhang is an associate professor in the Department of Construction Management at Tianjin University. His areas of research relates to knowledge management in construction and BIM applications. He is a registered professional engineering in China and is a member of the Project Management Institute, Canadian Society of Civil Engineers, and Institute of Electrical and Electronics Engineers.
Dr. Dongping Fang

Dr. Dongping FANG is a Professor and head at Dept. of Construction Management, School of Civil Engineering, Tsinghua University. He is the founding director of (Tsinghua–Gammon) Construction Safety Research Center. His research, teaching and consulting are in the area of safety and risk management in construction, sustainability and green construction in which more than 200 reports, papers and books in English, Japanese and Chinese have been published. Dongping is a board member of CIB and the Chair of CIB program committee (2010-2013). He is a member of the executive committee of GLF-CEM. He has been honored as Visiting Professors in Australia, Sweden and the UK. He also serves as member of editorial board of several international journals.

Dr. Samuel Guo, Tsinghua University

Dr. Guo is an associate professor in the Department of Construction Management at Tsinghua University in China. His research areas include Construction Information Technology, Building Information Modelling (BIM), Virtual Construction, Virtual Prototyping, and Construction Management Innovation.
APPENDIX B: SPEAKER BIOGRAPHIES

Lecture 1: Course Introduction, Construction Challenges in a Global Environment, and Discussion of First Assignment

Michael B. Gwyn (in studio at NC State)

Michael Gwyn is Senior Vice President of Leidos Engineering, LLC and President of Leidos Constructors, LLC, the Design-Build and EPC arm of Leidos. Mr. Gwyn is responsible and accountable for facilities, manufacturing, industrial and process related engineering and construction. He has been involved in a variety of projects outside the continental United States for U.S. Government facilities including U.S. Embassies, facilities for USAID and housing projects for the Navy. Other international design-build and construction projects include the Petronas Towers in Kuala Lumpur, various facilities for the US government on Kwajalein Atoll, diesel power plants, data centers, cable stations, schools, hospitals, water and wastewater treatment plants and radio relay stations for the VOA.

Dr. A. Ramakrishna (pre-recorded)

Dr. A. Ramakrishna served as President of Indian National Academy of Engineering (INAE). Dr. Ramakrishna served as Deputy Managing Director of Larsen & Toubro Limited (L&T Ltd.) from March 2000 to 2004. He served as the President and Deputy Managing Director of Larsen and Turbo's ECC Construction Division. He started his career in 1962 with Engineering Construction Corporation Limited then a wholly owned subsidiary of Larsen & Toubro Limited. He serves as Vice-Chairman of National Academy of Construction. He has been Independent Non-Executive Director of GVK Power And Infrastructure Ltd. since September 10, 2005. He served as a Director of GVK Industries Ltd.
Lecture 2: Culture, Communication, Conflict, and Leadership

G. B. Singh (in studio at NC State)

G. B. Singh is the former Chairman and Managing Director for Red Fort Capital Advisors. Prior experience includes 16 years with Larsen & Toubro Ltd, ECC Construction Group, 11 years with Hindustan Pre-fab Ltd in New Delhi, four years as President & Chief Executive Director on the Board of DLF Universal Ltd and advisor for 2 years. Mr. Singh is a Fellow in the India Institution of Engineers and Institute of Standards Engineers and Member of the Indian Institute of Public Administration and Society of Indian Value Management.

Dr. Avi Wiezel (pre-recorded)

Dr. Wiezel consistently ranks among the top five percent of best teachers in the Fulton School and has received the Outstanding Faculty Member Award. He has also served as the head of the Del E. Webb School of Construction. His research focuses on the human activities in construction and includes models for improving the skills of craftsmen, crews, project managers, and company executives. Prior to his academic career, Dr. Avi Wiezel held several managerial positions at construction and engineering firms in Europe and the Middle East.

Dr. Ashwin Mahalingam (pre-recorded)

Dr. Ashwin Mahalingam is assistant professor in the Building Technology and Construction Management division of the Civil engineering department at the Indian Institute of Technology at Madras (IITM), India. His current research interests are in the areas of infrastructure planning and management, risk assessment and allocation, mechanisms for shaping successful infrastructure projects and Cross-cultural issues on global infrastructure projects. He also performs research in the areas of sustainability and social entrepreneurship.
Lecture 3: Global Productivity Issues on Construction Projects

Dr. Koshy Varghese (in studio from IIT-Madras)

Dr. Koshy Varghese is a professor with the Department of Civil Engineering, Indian Institute of Technology Madras (IITM). His research interest is in the area of computer integrated project delivery. He has guided numerous Masters and Doctoral students and has been published widely in refereed journals and conferences. He has been a visiting faculty at the University of Texas at Austin, and a visiting eminent scholar at the Del E. Webb School of Construction at Arizona State University. He is a recipient of ASCE best paper award for Computing in Civil Engineering as well as the IAARC Tucker-Hasagawa award for contributions to automation in construction.

Gregory A. Howell, P.E., M.S.C.E. (pre-recorded)

Gregory A. Howell is co-founder and managing director of the Lean Construction Institute (LCI), a non-profit organization devoted to production management research in design and construction. Howell brings 35 years of construction industry project management, consulting and university-level teaching experience to LCI. Prior to his appointment as the Associated General Contractors' Visiting Professor in Construction Management at the University of New Mexico in 1987, Howell worked as a project engineer on heavy construction and general building projects and headed his own construction consulting firm for ten years. He is a member of the National Academy of Construction.
Lecture 4: Global Legal Issues for Engineers and Constructors

Michael C. Loulakis (Video conference)

Mike Loulakis is a lawyer with more than 30 years of legal and consulting experience in all aspects of the construction industry. His company, Capital Project Strategies, concentrates on developing the project delivery, procurement, contracting and risk management strategies for both domestic and international projects. He is particularly well-known for his extensive background in EPC, design-build and other alternative project delivery systems, and has been one of the industry’s most active writers and speakers on the subjects. Mr. Loulakis holds a civil engineering degree from Tufts University and is a member of the National Academy of Construction. He has written “The Law” column for Civil Engineering magazine since 1981.

Dr. Pin-Chao Liao (pre-recorded)

Dr. Pin-Chao Liao, Project Management Professional (PMP), is an Assistant Professor in the Department of Construction Management, Tsinghua University. His areas of research include Engineering Management, Construction Safety, Productivity, Law and Economics and Green Building. He is also a member of the Project Management Institute and also a former post-doctoral research fellow, Construction Industry Institute (CII).

Dr. Ghada Gad (pre-recorded)

Dr. Ghada M. Gad is an Assistant Professor in the Construction Management Department at Bowling Green State University. She received her Ph.D. degree in Civil Engineering (Construction emphasis) from Iowa State University. Her Ph.D. research focused on international construction contracts where she was investigating the effect of culture, risk, and trust on choice of dispute resolution methods (DRM). She developed a model to help international contractors from English-speaking countries in deciding which DRMs to use if planning to operate in the Middle East or Asia. Her research interests include human factor effects on construction projects, alternative project delivery methods, and risk management.
Lecture 5: Global Construction Financial Techniques

Dr. Satya Kalidindi (in studio from IIT-Madras)

Dr. K. N. Satyanarayana is a Professor in the Building Technology & Construction Management Division of the Department of Civil Engineering at the Indian Institute of Technology Madras, Chennai, India. In 2009 he was a Visiting Professor at Iowa State University (USA) during which time this course was conceived. His teaching, research and consulting interests are in the areas of project management, construction contracts, quality management, construction equipment, and public private partnerships. He has published extensively in these areas. He is the recipient of many academic awards. Recently he was presented the PMI India Distinguished Scholar 2011 award. He is a board member of the Institute for Lean Construction Excellence, Vice-Chairman, Board of Advisors of The Glass Academy, and Member of the Academic Advisory Group, Project Management Institute (PMI) India.

Emerson T. Johns (pre-recorded)

Emerson is a retired financial leader for DuPont, having worked 40 years in a variety of key technical and leadership positions. His work included global responsibilities in Auditing, Business Analysis, Treasury, and Accounting and was the financial leader at the Savannah River site. He was also the global Finance Director for several of DuPont’s organizations including Engineering, Facilities & Real Estate, Safety Health & Environmental, and Corporate Remediation. He has also worked with a variety of external organizations including several related to the construction industry including the Construction Industry Institute (CII), CURT, European Construction Institute (ECI), ECC, CFMA, and others. He was appointed Chairman of CII and was also appointed chairman of various CII committees including the Executive, Strategic Planning teams, Finance, Research, Construction Project Improvement Conference, and CII’s 25th Annual Conference. He was selected for inclusion at various times to Marquis’ Who’s Who publications, including Who’s Who in the World, Who’s Who in America, Who’s Who in Science and Engineering and Who’s Who in Finance and Business.

Harry Sambells (pre-recorded)

Mr. Sambells is President of Sambells Global Consulting and a former Senior Vice President and General Manager for the oil and gas division of Canada's largest engineering consulting company in Calgary, Alberta. He has been a successful Project Director on billion dollar projects from execution of conceptual studies to execution of major EPC Lump Sum projects. His experience includes mining developments in Canada’s arctic to major projects in the deserts of Saudi Arabia. He has lectured and participated in panel discussions at the University of Calgary, PMI Conferences, Canadian Heavy Oil Association, and has been lecturer and chairman at several Canadian Institute seminars in Canada and is also the co-chair of the Project Management Advisory Council at the University of Calgary.

Dr. WANG, ShouQing (pre-recorded)

Dr. WANG, ShouQing is a Professor at the Department of Construction Management, Tsinghua University, Beijing, China and Deputy Director, Institute of International Engineering Project Management, Tsinghua University. His research interest is mainly on Public-Private Partnership and Risk Management, and has produced numerous publications. He is also Chairman of the China National Collaboration Network for M.Eng.(PM) Education (161 universities).
Lecture 6: Managing Global Engineering and Construction Projects

Chris Reseigh (in studio from NC State)

Chris Reseigh recently retired from his position as the Global Director of Program and Construction Management for Parsons Brinckerhoff. He was the former President of PBCS Inc., the program and construction management subsidiary of Parsons Brinckerhoff (PB) for 15 years. His career in engineering and construction management spans more than 40 years and he is a Principal Professional Associate, Principal Project Manager and a PE in many states. He is the Past President of the ACE Mentoring Affiliate for the Greater Washington DC/Northern Virginia Metro area and is a member of the National Academy of Construction.

Dr. Shuibo Zhang (pre-recorded)

Dr. Zhang Shuibo is Professor of Construction Management at the School of Management, Tianjin University, and Guest Professor of IIEPM, Tsinghua University. He specializes in the field of construction management and contracts and has published several books and journal papers in this area. Dr. Zhang is also Arbitrator of China International Economic and Trade Arbitration Commission (CEITAC), Consulting Expert of China International Contracting Association (CHINCA), Bid Evaluation Expert of Ministry of Commerce, China and FCIOB. He also acts as consultants for mega projects.

Mike Bellamy (pre-recorded)

Mr. Bellamy has approximately 32 years of progressive complex civil engineering design, project management and construction management experience. He has worked on major projects and programs in the United States, Europe, Africa, Caribbean, and Central America with the U.S. Army Corps of Engineers and Naval Facilities Engineering Command. Most recently, Mr. Bellamy served as Director of the Office of Engineering, Design and Construction at the Smithsonian Institution, where he led various groups including engineering and design, construction management, cost engineering and geospatial engineering. Mr. Bellamy is presently a Vice President with Clark Nexsen Architecture and Engineering firm. He holds a Bachelor of Science degree in civil engineering and a Master of Science degree in building construction management from the Virginia Military Institute and Purdue University. He is also registered professional engineer in the State of Virginia.

Mike Carrancho (pre-recorded)

Mr. Carrancho has more than 20 years of design and construction experience in the United States and abroad. Mr. Carrancho is currently the Associate Director, Engineering & Design Division, of the Smithsonian Institution. From 1996-2010 Mr. Carrancho served in many professional capacities for the Naval Facilities Engineering Command, Europe Africa and Southwest Asia located In Naples, Italy. While serving there he was responsible for four business lines providing: Design and Construction services, Planning & Real Estate Acquisition, Environmental Services and Facilities Maintenance and Operations. He also served as Chief Engineer, where he was the Authority Having Jurisdiction for United States and Host Nation code compliance issues in the countries of Portugal, Spain, Italy and Greece. He presided over $1 billion worth of design and construction projects during his incumbency. Mr. Carrancho is a registered professional civil engineer in the state of California and is a LEED Green Associate.
Lecture 7: International Engineering and Construction Standards

Dr. Clifford Schexnayder (in studio)

Dr. Clifford Schexnayder is the Emeritus Eminent Scholar, Del E. Webb School of Construction, Arizona State University. He holds degrees from Georgia Institute of Technology and Purdue University. His last assignment with the U.S. Army Corps of Engineers before retirement was as Executive Director, Directorate of Military Programs, in the Office of the Chief of Engineers. Before entering academia he was the Chief Engineer and an Officer of the Corporation, Nello L. Teer Company, Durham, North Carolina. He has taught construction engineering at Arizona State University and Louisiana Tech University; and as a visiting professor at Virginia Polytechnic Institute and State University, the U.S. Air Force Academy, Universidad de Piura and Ricardo Palma Universidad in Peru, and at the Israel Institute of Technology.
**Lecture 8: Construction in Central America and the UK/Ireland**

**Dr. Rodolfo Valdes-Vasquez (pre-recorded)—available for Q&A**

Dr. Valdes-Vasquez, a former Fulbright Scholar, is an Assistant Professor in the Department of Construction Management at Colorado State University. He is committed to advancing research and teaching in the sustainability of infrastructure projects. His previous work includes developing a framework of social sustainability processes for infrastructure projects that aims to help decision makers understand these processes and their interrelationships to better address social considerations that are often overlooked. Also, he collaborated with the Panamanian Construction Chamber, research that resulted in guidelines for creating construction safety programs. Dr. Valdes-Vasquez is a member of ASCE, Chi Epsilon, SACNAS, and CRC organizations. He believes that educating the next generation of professionals, researchers, and educators will play a pivotal role in making sustainability a standard practice in the engineering and construction professions.

**David Comiskey (pre-recorded)**

Mr. Comiskey is a lecturer in Architectural Technology at the University of Ulster and has received awards for innovation in teaching and learning, recently being awarded a Distinguished Teaching Fellowship. His research interests focus on innovative building detailing techniques and minimizing heat loss in buildings due to thermal bridges. He also has a strong interest in Building Information Modeling (BIM) and built environment education. He is a Chartered Architectural Technologist and Chartered Builder and prior to his academic career worked in architectural practice.

**Steve Revay (pre-recorded)**

Stephen Revay, FCSC, CCC, CFCC has been active for the past 35 years in the analysis of progress, productivity and cost on numerous construction projects. He has prepared or evaluated productivity and/or schedule analyses, including quantification of claims on construction projects throughout Canada, in the United States, the Middle East, Asia and South America. He has been qualified as an expert witness in both litigation and arbitration. He has been appointed as the Project Neutral on a $2 billion industrial project. He has acted as both a mediator and as arbitrator on different disputes. Mr. Revay has authored articles for various construction periodicals and conducted numerous seminars on construction disputes to owners and contractors alike. He frequently presents at in-house seminars and is a guest lecturer at the University of Calgary. Steve was President of AACE® (Association for the Advancement of Cost Engineers International) from June 2010 to June 2011.
Lecture 9: Construction Practices in the United States
Dr. Jaselskis and students from North Carolina State University

Lecture 10: Construction Practices in India
Dr. Kalidindi and students from IIT-Madras
Lecture 11: Construction Practices in China and Chinese Taipei
Drs. Liu and Chen at Tianjin University and Drs. Dongping Fang and Guo at Tsinghua University

Dr. H. Ping Tserng (pre-recorded)

Dr. H. Ping Tserng is a professor at the Department of Civil Engineering of National Taiwan University. He has a PhD degree in Construction Engineering and Management from University of Wisconsin-Madison and he is an official reviewer or editorial board member of several international journals. He has published 40 research papers in SCI journals. His research interests include advanced techniques for project management, construction finance, knowledge management, management information system, GPS/Wireless Sensor Network, and automation in construction. He also is a corresponding member of Russian Academy of Engineering, committee member of The Public Construction Golden Quality Award in Taiwan, The Dispute Review Board for Government Procurement in Taiwan, and the Vice-president of Department of Civil Engineering of National Taiwan University.

Steven Huang (pre-recorded)

Mr. Wen-Haw (Steven) Huang is a general manager of the Long Reign Development Co., a real estate company in Taipei. Currently, he is a Ph.D. Student in the Department of Civil Engineering at National Taiwan University. His research interests are construction finance, construction management, and project performance evaluation.
Lecture 12: Construction Practices in Africa, Germany, and Canada
Dr. David Root (Witwatersrand) and Dr. Hans Alfen (Bauhaus-Universitat Weimer)
Lecture 13: Safety and other Best Construction Industry Practices

Wayne Crew (call in)

Wayne Crew is the Director of the Construction Industry Institute (CII). He joined CII in 2004 as the Associate Director for Research. Prior to CII, he served as Vice President of Construction for Technip USA Corporation. He was active in CII while with Technip, serving as the firm’s representative to the CII Board of Advisors and as a member of the CII Research Committee. Crew spent 23 years at KBR and its predecessor companies, Kellogg Brown & Root and Brown & Root. He retired from KBR as Vice President and Business Segment Leader for the Industrial Services Segment. Crew serves on the National Board of Directors for the ACE Mentor Program. The Board of Trustees for the National Center for Construction Education and Research, and the Board of Advisors for Fiatech. He is a member of the National Academy of Construction and a registered professional engineer in Michigan. He has been married over 35 years to his wife, Rivanna.

Dr. Dongping Fang (pre-recorded)

Dr. Dongping FANG is a Professor and head at Dept. of Construction Management, School of Civil Engineering, Tsinghua University. He is the founding director of (Tsinghua–Gammon) Construction Safety Research Center. His research, teaching and consulting are in the area of safety and risk management in construction, sustainability and green construction in which more than 200 reports, papers and books in English, Japanese and Chinese have been published. Dongping is a board member of CIB and the Chair of CIB program committee (2010-2013). He is a member of the executive committee of GLF-CEM. He has been honored as Visiting Professors in Australia, Sweden and the UK. He also serves as member of editorial board of several international journals.
Lecture 14: Term Project Presentations
Student presentations

Lecture 15: Term Project Presentations and Course Wrap-up
Student presentations
APPENDIX C: READINGS

Lecture 1: Course Introduction, Construction Challenges in a Global Environment

- Required Reading:
  - Chapter 1: Introduction (Global Engineering and Construction)
  - Chapter 13: Preparing Engineers and Constructors to Work Globally (Global Engineering and Construction)

- Additional Readings:

Lecture 2: Culture, Communication, Conflict, and Leadership

- Required Reading:
  - Chapter 2: The Concept of Culture and Global Issues Important to Engineers and Constructors (EG&C)
  - Chapter 24: Leadership in My Rearview Mirror (The DNA of Leadership) (e-Reserve)

- Additional Readings

Lecture 3: Global Productivity Issues on Construction Projects

- Required Reading:
  - Chapter 10: Global Productivity Issues on Construction Projects (GE&C)

- Additional Reading:
  - Koskela, Lauri and Gregory Howell, “The underlying theory of project management is obsolete,” Project Management Institute, 2002. (e-Reserve)

Lecture 4: Global Legal Issues for Engineering and Construction Projects

- Required Reading:
  - Chapter 7: Global Legal Issues for Engineers and Constructors (GE&C)
  - Chapter 11: Global Planning and Construction Delays (GE&C)

Lecture 5: Global Construction Financial Techniques (including PPP)

- Required Reading:
  - Chapter 5: Global Engineering and Construction Alliances (GE&C)
  - Chapter 6: Global Construction Financial Techniques (GE&C)
Lecture 6: Managing Global Engineering and Construction Projects

- Required Reading:
  - Chapter 3: Managing Global Engineering and Construction Projects (GE&C)

Lecture 7: International Engineering and Construction Standards

- Required Reading:
  - Chapter 8: International Engineering and Construction Standards (GE&C)

Lecture 8: Construction Practices in Central America and Europe

- Required Reading:
  - Chapter 14: Country-Specific Information (South America and Eastern and Western Europe) (GE&C)

Lecture 9: Construction Practices in the United States

- Required Reading:
  - Chapter 14: Country-Specific Information (North America) (GE&C)

Lecture 10: Construction Practices in India

- Required Reading:
  - None

Lecture 11: Construction Practices in China and Chinese Taipei

- Required Reading:
  - Chapter 14: Country-Specific Information (Asia) (GE&C)

Lecture 12: Construction Practices in Germany, Africa, and Canada

- Required Reading:
  - Chapter 14: Country-Specific Information (Africa) (GE&C)

Lecture 13: Safety and other Best Construction Industry Practices

- Required Reading:
  - None

Lecture 14: Term Project Presentations

- Required Reading:
  - None

Lecture 15: Term Project Presentations and Wrap-up

- Required Reading:
  - None