

San José State University
Lucas Graduate School of Business
Master of Science in Transportation Management
MTM 246 High-Speed and Intercity Rail: Engineering/Operations
Fall-B 2020

Course and Instructor Contact Information

Instructor:	John Litzinger, P.E., PMP
Office Location:	Contact Instructor
Telephone:	408-718-0343
Email:	jwlitzingerpe@gmail.com
Office Hours:	Contact Instructor Litzinger via email above to sign up
Class Day/Time:	Mondays, 5:30 – 9:30 pm, on October 12, 19, 26, November 2, 9, 16, 23, 30, December 7, 14, 2020
Classroom:	Zoom
Course website:	Canvas (http://sjsu.instructure.com)
Units:	3

Course Format

Students must have regular access to email and the internet in order to communicate with the instructor, submit assignments, and engage in other class activities.

You can join class using SJSU Zoom from any location, as long as you:

- Are in a quiet room without distractions (e.g., no family members or colleagues walking through or asking questions)
- Have stable internet access
- Use a video camera and good quality microphone so that you are seen as well as heard
- Follow good "meeting etiquette" principles (one such list: <https://blog.gotomeeting.com/7-rules-virtual-meeting-etiquette-every-professional-know/>)

To access class sessions by Zoom, click on the following link from your computer or tablet.

Join from PC, Mac, Linux, iOS or Android: [...]

Plan to join at least ten (10) minutes before 5:30 pm, to make sure you are ready when class begins. (The very first time you join from a computer or device, allow extra time for set-up.)

The university has many useful tutorials on how to use Zoom here: <http://www.sjsu.edu/ecampus/teaching-tools/zoom/index.html>

Course Description

Course introduces students to best practices for managing the engineering and operations of high-speed and intercity rail. Topics covered include day-to-day operational concerns such as customer experience, service scheduling, and security management. In addition, the class covers strategic issues such as operating blended service that accommodates both passenger and freight service, managing public communications, and contracting approaches for both construction and operations.

Lucas College and Graduate School of Business Mission and Program Learning Goals

We are the institution of opportunity in Silicon Valley, educating future leaders through experiential learning and character development in a global business community and by conducting research that contributes to business theory, practice and education.

(Note: Not all program learning goals are covered in every course)

- Goal 1: Business Knowledge:** Understand basic business principles and demonstrate discipline-specific competencies as applied to local and global environments.
- Goal 2: Communication:** Communicate ideas clearly, logically, and persuasively in oral and written format, using technology appropriately.
- Goal 3: Ethical Awareness:** Recognize, analyze, and articulate solutions to ethical issues that arise in business.
- Goal 4: Leadership, Teams and Diversity:** Comprehend the challenges and opportunities of leading and working in diverse teams and environments.
- Goal 5: Critical Thinking:** Comprehend, analyze, and critically evaluate complex and unstructured qualitative and quantitative business problems, using appropriate tools and technology.
- Goal 6: Innovation:** Recognize, analyze, and articulate strategies for promoting creativity and innovation.

MSTM Program Goals:

(Note: Not all program learning goals are covered in every course)

- Goal 1: Transportation Systems and Society:** Develop a systems-savvy and global perspective on solving transportation management challenges
- Goal 2: Transportation Policy:** Develop solutions to transportation management challenges that integrate knowledge of the transportation policy environment
- Goal 3: Leadership:** Identify and analyze leadership styles and traits
- Goal 4: Communications:** Communicate effectively with a diverse workforce and citizenry
- Goal 5: Analytical skills:** Identify and evaluate transportation management issues using appropriate data and methods

Course Learning Outcomes

This course is organized to develop and enhance the student's greater understanding of and a 'deeper dive' into management of transportation projects and organizations (with a focus on High Speed and Intercity Rail) as well as continue their development of management skills. The class will explore the nuances associated with these types of project through an interactive dialogue with those in the class. This is a discussion-based class. The instructor may have a guest lecturer for the first portion of each class to address either the main topic for the class or another aspect of the management of transportation projects (see Course Schedule below).

Upon successful completion of this course, students will be able to:

1. Discuss with a peer or executive within their organization the primary elements of high speed and intercity rail (HSR/ICR) with respect to engineering, maintenance, and operations.
2. Describe the impacts of HSR on the operation of existing intercity rail and freight services through a comparative assessment of the impacts and benefits of adding HSR service.
3. Explain case studies of current world-wide projects as each has gone through different stages of development and how each would compare to the California High Speed Rail Project such as:
 - a. California High Speed Rail Project (as a basis for comparison)
 - b. Midwest High Speed Rail Project
 - c. Pacific Northwest High Speed Rail Project
 - d. Canada Projects
 - e. Northeast Indiana Passenger Rail Project
 - f. Blended Service (HSR with ICR) Projects (European Projects: Spain, France, Italy, Germany, UK; Asian Projects: Japan, Taiwan, Korea, China)
4. Develop an understanding of customer-based management principles as outlined in the book "In Search of Excellence" and how those principles could be applied to the management of public transportation organizations.
5. Evaluate and interpret the transportation policy environment, including key fiscal mechanisms, legislative structures, and components of developing High Speed Rail Systems around the world.
6. Describe both a system-level and a more global perspective on the management of High Speed and Intercity Rail organizations.
7. Prepare briefing memos and high-level oral presentations in a style appropriate for a manager or executive in the industry.
8. Analyze project engineering and operations issues using appropriate conceptual approaches and contemporary scholarly and professional literature.

Required Texts/Readings

Textbook

Emerging Challenges and Opportunities of High Speed Rail Development on Business and Society (Advances in Civil and Industrial Engineering) 1st Edition

by Raj Selladurai (Author, Editor), George VandeWerken (Editor), Peggy Daniels Lee (Editor)

ISBN-13: 978-1522501022

ISBN-10: 1522501029

Students may purchase this book or access it for free via the SJSU library using the following link:

https://sjsu-primo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=01CAL5_ALMA71457134510002901&context=L&vid=01CAL5_SJO&search_scope=EVERYTHING&tab=everything&lang=en_US

In Search of Excellence: Lessons from America's Best-Run Companies

by Thomas Peters and Robert H. Waterman (Harper Collins, 1982)

ISBN-10: 0060548789

ISBN-13: 978-0060548780

Available on Amazon.com

Other Readings

Additional readings or articles, when applicable to each class, will be provided by the instructor via CANVAS.

Library Liaison

The Library Liaison for the Lucas Graduate School of Business is Christa Bailey (christa.bailey@sjsu.edu).

Course Requirements and Assignments

This course requirements and assignments conforms to the details found from [University Syllabus Policy S16-9](#) at <http://www.sjsu.edu/senate/docs/S16-9.pdf>.

Research Assignment: Students will prepare a paper on a topic related to high speed and/or intercity rail, focusing on engineering and/or operational challenges. The purpose of the paper is to describe an aspect of high speed or intercity rail service and its value to the improvement of mobility, and economic development in its respective community. Topics may include, but are not limited to, schedule development, contractual relationships, private and public sector relationships, security and safety, communications and any other activity which would need to be addressed as part of project development.

The final paper should be four (4) to five (5) pages (single-spaced, blank line between paragraphs) and written in the form a memo to the CEO/General Manager/Senior Executive/Board of Directors of their current organization or an organization that would be affected or have an interest in the HSR/ICR project.

The assignment is broken into the following steps, each due *before* class begins on that day:

1. Submit a description of the topic for approval (Week 3).
2. Submit a draft outline of the final paper (Week 4).
3. Submit a Draft Paper (Week 7).
4. Submit the Final Paper (Week 10).

The Instructor will provide feedback on the first three steps.

Additional instructions for this assignment will be shared on Canvas and during class.

In-Class Presentation: Students will deliver a summary of the paper (using a *PowerPoint* presentation) on December 14, 2020 (Week 10), in an oral presentation of no more than ten (10) minutes, followed by a question/answer session.

Reading Reflections/In-Class Participation: Students will also be assigned chapters in the *Emerging Challenges* and *In Search of Excellence* books. Students will present a brief two (2) page memo (Reading Reflections) of the highlights and essential points described in a chapter or chapters for each class session that a chapter is assigned. The management book reading response should include an example or observation of a current or recent experience applicable to the chapter. These memos should be organized by each book and include 2-3 questions for discussion with at least one question from each book. ***Each memo will form the basis for a portion of the weekly class discussion.***

Discussion Facilitator. Each student will be expected to lead the weekly class discussion one (1) time as the Discussion Facilitator. At the end of each class, the Discussion Facilitator will be assigned for the following week. The Discussion Facilitator assignments will be during Weeks 2 through 9, depending on the size of the class.

Task	Due Date	Points (pts) for the Course Grade	Learning Objectives Addressed
Research Assignment	Week 3 - 10/26/20 (Proposed Topic) Week 4 - 11/2/20 (Outline) Week 7 - 11/23/20 (Draft Paper) Week 10 - 12/14/20 (Final Paper)	5 pts (Proposed Topic) 5 pts (Outline) 10 pts (Draft Paper) 20 pts (Final Paper)	LO's 1-8 (depending on the topic selected by the student)
In-Class Participation	Weekly	20 pts (2 pts each week)	LO's 1-8
Discussion Facilitator	Once during the session	10 pts	LO 7
Reading Reflections	Weekly (Sunday 12PM prior to class – posted to CANVAS)	16 pts (2 pts each week 2 through 9, Pass/Fail)	LO's 6, 7
In-Class Presentation	Week 9 - 12/7/20 (Draft Presentation - Slides Only) Week 10 - 12/14/20 (Final Presentation)	5 pts (Draft Presentation – Slides Only) 9 pts (Final Presentation)	LO's 1-8
Total		100 pts	

Grading Information

The grading information for this class is noted above. Student must schedule meetings to solicit feedback from the instructor on their Research Assignments and In-Class Final Presentations. The feedback will be done via scheduled telephone calls; no written feedback will be provided. Be sure to schedule these appointments well in advance, to ensure that the instructor is available at a time convenient to you.

Determination of Grades

Grades will be determined by the following elements:

- **Research Assignment:** This assignment will be graded over the course of its development (proposed topic, outline, Draft Paper, and Final Paper). Topic must be associated with High-Speed Rail (HSR) service, engineering, operations, or a component of rail service (Safety, Security/Terrorism, Multi-Modal Systems, Transit Oriented Development, etc.). Points will be given based on knowledge of the material, articulation of the main theme, and clarity that demonstrate an understanding of the topic.
- **In-Class Participation:** one (1) point will be assigned for general engagement, two (2) points assigned for active engagement through questions raised and contributions to the discussion.
- **Discussion Facilitator:** Each class will have a Discussion Facilitator to lead the discussion of the readings using the student-prepared Reading Reflections. The Discussion Facilitator is expected to review the Reading Reflections and provide an assessment to the Instructor (prior to the start of the class) on the relevance (quality) of the memos posted, questions proposed, strategy for facilitating the class discussion, and a post-class debrief with the instructor. Points will be given based on the effectiveness of these activities (such as engagement of the class, opportunities for all students to participate/engage in the discussion, and the facilitating the discussion).
- **Reading Reflections:** Each class will have graded reading reflections (memos) associated with the week’s reading materials. A pass/fail score will be given, based knowledge of material, articulation of main discussion themes, and thoughtful questions that demonstrate an understanding of assigned readings. Assignments posted later than the time noted in the grading chart above, but before class begins, will receive half credit. Assignments posted after class begins will receive zero credit.
- **In-Class Presentation:** This assignment is to be completed using *PowerPoint* and will be graded over the course of its development (Draft Presentation and Final Presentation). Points will be given based on the material presented (clarity and relevance of the slides) and the knowledge of the material presented.
- If a student must miss a class, they must notify the instructor prior to the start of class. If the student was the scheduled Discussion Facilitator, their Facilitator assignment will be rescheduled. The Reading Reflections will still be due so they can be used during the class with the author being acknowledged.
- Extra credit will not be available for this class.

Letter Grade Calculation

Percentage	Grade
94% and above	A
93% - 90%	A-
89% - 87%	B+
86% - 84%	B
83% - 80%	B-
79% - 77%	C+
76% - 73%	C
72% - 70%	C-

69% - 67%	D+
66% - 63%	D
62% - 60%	D-
below 60%	F

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>"

Course Schedule

As a portion of each class period will be devoted to discussion of the readings, the Reading Reflections for the assigned readings must be posted to Canvas by 12PM on the day before class meeting days.

Note: This schedule is subject to change with at least one week notice via email. The instructor will confirm at the end of each class the topic and assignments for the next class.

Guest Lecturers: This class may have a guest lecturer for the first portion (approximately 60 minutes) of each class that will discuss the topic for that class.

Class Date	Class Activities, Readings, & Assignments
10-12-20	<p>Week 1: Course Introduction, Overview of CAHSR, Draft EIR/S's for Northern California Project Sections, Introduction to Rail Operations</p> <p>Agenda</p> <ul style="list-style-type: none"> • Introductions by the students (student introduce themselves, explain where they are in the MSTM program and why they are pursuing the MSTM degree or certificate, explain what they hope to learn from the class/why they are taking the class) • Overview of the syllabus • Introduction to High Speed Rail/Overview of the California High Speed Rail Project • CHSRA Draft EIR/S San Jose to Merced and San Francisco to San Jose • Discussion of your opinion/recommendation on how the CHSRA project should move ahead • Management Text – Chapters 1-4 <p>Readings: California High Speed Rail Program September 17, 2019 CHSRA Board Meeting – Draft EIR/S San Jose to Merced and Draft EIR/S San Francisco to San Jose - Executive Summary; Management Text Chapters 1-4</p> <p>Reading Reflections – none required this week.</p> <p><i>Guest Speaker: Paul Hebditch, Network Rail Consulting – CHSRA Project, Lead Operations Planning - Introduction to Rail Operations</i></p>
10-19-20	<p>Week 2: Rail Asset Management and Maintenance</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapters 1, 2, 3 Management Text, Chapter 5</p>

	<p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Mick McNulty, Network Rail Consulting – CHSRA Train Control – Asset Management and Maintenance</i></p>
10-26-20	<p>Week 3: Early Stage Development of Projects</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • Small group discussion about Research Assignment Proposed Topic • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapter 4 Management Text, Chapter 6</p> <p>Research Assignment – Proposed Topic – due at the beginning of class</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Ian Brown, Network Rail Consulting, Early Stage Development of Projects</i></p>
11-2-20	<p>Week 4: Cybersecurity for Infrastructure</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • Small group discussion about Research Assignment Outlines • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapter 5 Management Text, Chapter 7</p> <p>Research Assignment – Outline – due at the beginning of class</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Ash Padwal, Allied Telesis – Cybersecurity for Infrastructure</i></p>
11-9-20	<p>Week 5: Management Principles: Program vs Project</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapter 6</p>

	<p>Management Text, Chapter 8</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Cathi Zammit, PE, City of San Mateo, Management Principles – Program vs Project</i></p>
11-16-20	<p>Week 6: HSR Track Design</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapter 7 Management Text, Chapter 9</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Douglas McLeod, Network Rail Consulting – Track Design</i></p>
11-23-20	<p>Week 7: Lessons Learned from Mega Projects</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • In-class Peer Review of Draft Papers and Discussion • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapter 8 Management Text, Chapter 10</p> <p>Research Assignment - Draft Paper - due at the beginning of class</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Ian Brown, Network Rail Consulting – Lessons Learned from Mega Projects: Specific focus on Crossrail in the United Kingdom</i></p>
11-30-20	<p>Week 8: Sustainable Power Storage Solutions for Providing Power to Trains</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapters 9 and 10 Management Text, Chapter 11</p>

	<p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Ryan Scott, Network Rail Consulting, CHSRA Project, Lead Systems – Sustainable Power Storage Solutions for Providing Power to Trains</i></p>
12-7-20	<p>Week 9: Engineering and Operations – Selected Topics from the Class – Tunneling 101 (Design, Technologies, Geology, Ventilation/Fire Life Safety)</p> <p>Agenda</p> <ul style="list-style-type: none"> • Presentation by instructor and guest speaker (planned) • In-class Peer Review of Draft Presentation (Slides Only) and Discussion • Discussion of Reading Reflections <p>Readings: Emerging Challenges, Chapters 11, 12, 13 Management text, Chapter 12</p> <p>In-Class Presentation - Draft Presentation (Slides Only) - due at the beginning of class</p> <p>Reading Reflections noted above for this class are due</p> <p><i>Guest Speaker: Mala Ciancia, PG; Bernd Hagenah, Tony Bauer, Mike Wongkaew, PE – HNTB</i></p>
12-14-20	<p>Week 10: Experiences in Leadership and Management, Class paper presentations, wrap-up</p> <p>Agenda</p> <ul style="list-style-type: none"> • Discussion of Reading Reflections • Class Presentations • Course Summary/Wrap-up/Feedback <p>Research Assignment - Final Paper - due at the beginning of class</p> <p>In-Class Presentation – Final Presentation – due at the beginning of class</p> <p><i>Guest Speakers: Marian Lee, Lighthouse Public Affairs, Christine Watson, Transportation Authority of Monterey County (TAMC) – Experiences in Leadership and Management</i></p>