# 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 2023

#### **Course and Instructor Contact Information**

**Instructor:** John Litzinger, P.E., PMP, ENV SP

**Office Location:** Contact Instructor

Email: John.Litzinger@sjsu.edu, cc: jlitzinger@hntb.com

Office Hours: Contact Instructor Litzinger via email above to schedule an appointment

Class Day/Time: Thursdays, 5:30 – 9:30 pm, on October 5, 12, 19, 26, November 2, 9, 16,

30 December 7, 14, 2023

**Classroom:** Zoom

Course website: Canvas (http://sjsu.instructure.com)

#### **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.

Students attend class sessions online using Zoom, SJSU's online meeting application. During classes, students should:

- Be 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: <a href="https://blog.gotomeeting.com/7-rules-virtual-meeting-etiquette-every-professional-know/">https://blog.gotomeeting.com/7-rules-virtual-meeting-etiquette-every-professional-know/</a>)

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

Join the meeting 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: <a href="http://www.sjsu.edu/ecampus/teaching-tools/zoom/index.html">http://www.sjsu.edu/ecampus/teaching-tools/zoom/index.html</a>

# Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on <u>Canvas Leaning Management System course login website</u> at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through <u>MySJSU</u> at http://my.sjsu.edu (or other communication system as indicated by the instructor) to learn of any updates.

## **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.

# **MSTM Program Learning Goals:**

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

- **Goal 1:** Transportation Systems and Society: Craft management decisions that integrate knowledge of multimodal transportation, social, and, environmental systems
- Goal 2: Innovation: Develop innovative solutions to transportation management challenges
- Goal 3: Leadership: Develop high-impact leadership styles and competencies (traits, skills, behaviors)
- 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 books "In Search of Excellence" and "The Excellence Dividend" 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 and provide key points that you believe are most important and why/your recommendation or opinion.
- 8. Analyze project engineering and operations issues using appropriate conceptual approaches and contemporary scholarly and professional literature.

# Required Texts/Readings

#### **Textbooks**

#### HSR Text

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 access this book for free via the SJSU/MSTM library using the following link:

https://sjsu-primo.hosted.exlibrisgroup.com/primo-

<u>explore/fulldisplay?docid=01CALS\_ALMA71457134510002901&context=L&vid=01CALS\_SJO&search\_scope=EVERYTHING&tab=everything&lang=en\_US, E-Book\_Library\_Guide</u>

#### Management Text #1

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

by Thomas Peters and Robert H. Waterman (Harper Collins, 1982/2012)

ISBN: 978-0062263612

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

In Search of Excellence: Lessons From America's Best-Run Companies: EBSCOhost (silibrary.org)

Available on Amazon.com and SJSU/MSTM eLibrary, E-Book Library Guide

#### Management Text #2

# The Excellence Dividend: Meeting the Tech Tide with Work That Wows and Jobs That Last

by Thomas Peters (Vintage Books Original, 2018)

ISBN: 9780525434634

Students may purchase this book or access it for free via the SJSU/MSTM library using the following link: THE EXCELLENCE DIVIDEND - Meeting the Tech Tide with Work That Wows and Jobs That Last (Peters-2018).pdf - Google Drive

Available on Amazon.com and SJSU/MSTM eLibrary, E-Book Library Guide

#### **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 <u>University Syllabus Policy S16-9</u> at http://www.sjsu.edu/senate/docs/S16-9.pdf.

Research Assignment: Students will prepare a paper on a strategy related to the California High Speed Rail Project (Project), focusing on the constructing/completing Phase 1 of the project once environmental clearance is achieved for each project section (although, only the Palmdale-Burbank and Los Angeles-Anaheim sections within Phase 1 have yet to be clear of the environmental phase, assume they are environmentally cleared for the purposes of this Assignment). The purpose of the paper is to describe a sequence/priority schedule for the delivery completion of the Project (which has aspects of high speed or intercity rail service) and the value to the plan as it relates to mobility, and economic development in its respective community. The strategy shall address the following: 1) Funding sources including a projection of funding, 2) sequence or order of various 'construction packages', and 3) a forecasted schedule. Reference material, which will be used as the basis for all student papers, will be developed in the first two (2) weeks of the class.

The final paper should be four (4) to but no more than five (5) pages (excluding appendices) and written in the form a memo to the CEO /Board of Directors of the California High Speed Rail Authority (CHSRA).

Format for the Final Paper shall comply with the following requirements:

1. Documents should be prepared in single-spaced type, 12 point font, on 8-1/2 x 11 sheets printed double-sided with a blank line between paragraphs. Smaller font may be used for graphics labels, charts,

figures and tables. A page is considered to be a single side of an  $8-1/2 \times 11$  sheet. Should the student wish to submit materials that benefit from larger format paper sizes such as charts, drawings, graphs, and schedules, it should do so sparingly. Large format pages will be included in the page limit.

- 2. Pages should be numbered to show the page numbers and total number of pages in the response (e.g., Page 1 of 10, Page 2 of 10, etc.). Pages should be numbered at the bottom of the page.
- 3. Given the five-page limit, a table of contents or index should not be prepared. A List of References should be included in lieu of footnotes.
- 4. Appendices will not be included in the page limit; however, all appendices should be referenced in the body of the paper. Appendices could include, but are not limited to, the Reference Material, Final Presentation, etc.
- 5. Final Paper should be submitted as a pdf file.

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

- 1. Submit a description of the strategy 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 Research Assignment (using a *PowerPoint* or *Keynote* presentation) on Week 10, in an oral presentation of at least five (5) minutes but no more than ten (10) minutes depending on the size of the class, followed by a question/answer session. The Draft Presentation (Slides Only) is due on Week 9 with a verbal in-class summary.

Format: PowerPoint or Keynote application or PDF file if another application.

**Reading Reflections/In-Class Participation**: Students will also be assigned chapters in the *Emerging Challenges, In Search of Excellence, and The Excellence Dividend* books. Students will present a brief, two (2) page maximum memo of the highlights and essential points (2-3 points that resonate with them) 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 total for discussion with at least one (1) question based on each book. *Each memo will form the basis for a portion of the weekly class discussion*.

Format for the Reading Reflection memo: single-spaced, blank line between paragraphs, PDF file, entitled "Reading Reflections" with chapter information, student name, and assignment due date.

**Discussion Facilitator.** Each student will be expected to lead the weekly class discussion one (1) time as the Discussion Facilitator. Depending on the size of the class, it is possible that two (2) students will co-facilitate the weekly class discussion. In Week 1, we will determine the Discussion Facilitator(s) for Weeks 2-9. The Discussion Facilitator assignments will be during Weeks 2 through 9, depending on the size of the class. Each Discussion Facilitator will submit a brief assessment of the Reading Reflection Memos. **The assessment should be focused on the following: 1) were the requirements of the memo met, 2) a succinct 1-3 sentence** 

critique of each memo and (if applicable) a brief suggestion for improvement, and 3) which questions from the entire class set would be used initially during the facilitated discussion (assuming a 90-minute total discussion period divided roughly in equal parts for each book(s)).

Format for the Discussion Facilitator Assessment memo: single-spaced, blank line between paragraphs, PDF file, entitled "Discussion Facilitator Assessment" with chapter information, Discussion Facilitator name(s), student name, and discussion class date.

Task	Due Date	Points (pts) for the Course Grade	Course Learning Objectives Addressed
Research Assignment	Week 3 - 10/19/23 (Proposed Strategy)	5 pts (Proposed Strategy)	LO's 1, 2, 7
	Week 4 - 10/26/23 (Outline)	5 pts (Outline) 10 pts (Draft Paper)	
	Week 7 - 11/16/23 (Draft Paper)	20 pts (Final Paper)	
	Week 10 - 12/14/23 (Final Paper)		
In-Class Participation	Weekly	20 pts (2 pts each week)	LO's 1-8
Discussion Facilitator	Weekly (Wednesday 8AM prior to the day of the class – posted to CANVAS)	10 pts (50% for the class period, 50% for the RR memo assessment)	LO 1, 7
Reading Reflections	Weekly (Wednesday 12PM prior to the day of the class – posted to CANVAS)	16 pts (2 pts each week 2 through 9)	LO's 3, 4, 6, 7
In-Class Presentation	Week 9 - 12/7/23 (Draft Presentation - Slides Only)	5 pts (Draft Presentation – Slides Only)	LO's 1-8
	Week 10 - 12/14/23 (Final Presentation)	9 pts (Final Presentation)	
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 Strategy, Outline, Draft Paper, and Final Paper). The Strategy must be associated with High-Speed Rail (HSR) service and the completion of Phase 1, engineering, and operations, and could include 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. Pages beyond the maximum number will not be read therefore may result in less than full credit.
- 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 (if requested). 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). For classes with more than one discussion facilitator, each facilitator will assess half the RR memos submitted clearly noting which memos would be assessed by the other facilitator. The assessment memos will be valued as 50% of the total points for the Discussion Facilitator assignment.
- 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. After Week 3, pages beyond the maximum number will not be read therefore may result in less than full credit.
- In-Class Presentation: This assignment is to be completed using *PowerPoint* or *Pages* 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. The Instructor will provide a 1-minute warning from the time limit and again at the time limit; *however*, the student will be allowed to quickly finish their presentation beyond the time limit which may result in less than full credit.
- 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.

Each point earned on an assignment will be equal to one (1) percent. For example, if 95 points are earned, that will correspond to 95% and a grade of an "A" would be the result.

**Letter Grade Calculation** 

Percentage	Grade
94% and above	Α
93% - 90%	A-
89% - 87%	B+
86% - 84%	В
83% - 80%	B-
79% - 77%	C+
76% - 74%	С
73% - 70%	C-
69% - 67%	D+
66% - 64%	D
63% - 60%	D-
below 60%	F

#### **Classroom Protocol**

My expectation is that everyone will be polite and act in a professional manner. If a student be late to class or know ahead of time that they'll have to leave early, the student will notify the Instructor prior to the start of class. We will respect the opinions of others and be mindful of the time when we are speaking. The Instructor will have the right to curtail the discussion of a topic so that the topics planned for the class will be covered. The Instructor will treat the class as a meeting in a professional setting. If a student needs to step away during the class, it is expected that they will use the Chat feature to let the Instructor know.

# **University Policies**

Per <u>University Policy S16-9</u>, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on this <u>Syllabus</u> <u>Information web page</u>. Make sure to visit this page to review and be aware of these university policies and resources.

# **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 fair notice and will be done via email. The instructor will confirm at the end of each class the topic and assignments for the next class.

Guest Speakers: This class plans for a guest speaker for the first portion (approximately 60-90 minutes) of each class that will discuss a topic for that class. In general, the class will take a dinner break between the guest speaker and the rest of each class agenda items. The guest speaker topic may not match up with the assigned readings.

Class Date	Class Activities, Readings, & Assignments
10-07-23	Week 1: Course Introduction; Overview of the CAHSR program; Final EIR/S's for Northern California Project Sections; Rail Infrastructure, Rolling Stock and Operations, an Integrated View
	Agenda
	<ul> <li>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)</li> <li>Overview of the syllabus</li> </ul>
	<ul> <li>Introduction to High Speed Rail/Overview of the California High Speed Rail Project</li> </ul>
	<ul> <li>CHSRA Final EIR/S San Jose to Merced and San Francisco to San Jose</li> <li>Discussion of your opinion/recommendation on how the CHSRA project should move ahead</li> </ul>
	Management Text #1 (In Search of Excellence) – Chapters 1-4
	Readings:
	California High Speed Rail Program April 27, 2022 CHSRA Board Meetings – Final EIR/S San Jose to Merced and Final EIR/S San Francisco to San Jose – Board Briefing Memo, Powerpoint presentation, Attachments A and C;
	California High Speed Rail Program August 17, 2022 CHSRA Board Meetings – Final EIR/S San Jose to Merced and Final EIR/S San Francisco to San Jose – Board Briefing Memo, Powerpoint presentation, Attachments A and C;
	Management Text #1 (In Search of Excellence) – Chapters 1-4
	Reading Reflections – none required this week.

Class Date	Class Activities, Readings, & Assignments
	Guest Speaker: Eduardo Romo, TRES, LLC – Rail Infrastructure, Rolling Stock and Operations, An Integrated Review
10-12-23	Week 2: Tunneling 101: Geologic Considerations and Tunnel Construction Methods Agenda  • Presentation by instructor and guest speaker (planned) • Discussion of Reading Reflections
	Readings: HSR Text – Emerging Challenges, Chapters 1, 2, 3 Management Text #1 (In Search of Excellence) – Chapters 5-8
	Reading Reflections noted above for this class are due  Guest Speakers: Mala Ciancia, PG; Luis Piek, PE – HNTB – Tunneling 101
10-19-23	Week 3: Rail Systems Design, Development and Delivery  Agenda  • Presentation by instructor and guest speaker (planned)  • Small group discussion about Research Assignment Proposed Strategy  • Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapter 4 Management Text #1 (In Search of Excellence) – Chapters 9-12
	Research Assignment – Proposed Topic – due at the beginning of class  Reading Reflections noted above for this class are due  Guest Speaker: Andrew Clapham, Network Rail Consulting –Rail Systems  Design, Development, and Delivery: A Train Control Systems Perspective
10-26-23	Week 4: Asset Management and Engineering Assurance  Agenda  • Presentation by instructor and guest speaker (planned)  • Small group discussion about Research Assignment Outlines

Class Date	Class Activities, Readings, & Assignments
	Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapter 5 Management Text #2 (The Excellence Dividend) - Section 1, Chapter 1
	Research Assignment – Outline – due at the beginning of class
	Reading Reflections noted above for this class are due
	Guest Speaker: Mick McNulty, Network Rail Consulting – CHSRA Train Control; Phil Gilmour, Network Rail Consulting – Asset Management and Engineering Assurance
11-2-23	Week 5: Sustainability Program in the CAHSR Project  Agenda  • Presentation by instructor and guest speaker (planned)  • Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapter 6 Management Text #2 (The Excellence Dividend) - Section 2, Chapters 2-4
	Reading Reflections noted above for this class are due
	Guest Speaker: Margaret Cederoth – Director of Sustainability and Planning, California High Speed Rail Authority
11-9-23	Week 6: Stakeholder Engagement and Funding Agenda  • Presentation by instructor and guest speaker (planned) • Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapter 7 Management Text #2 (The Excellence Dividend) - Section 3, Chapters 5-8

Class Date	Class Activities, Readings, & Assignments
	Reading Reflections noted above for this class are due
	Guest Speaker: Morgan Galli, Deputy Northern California Regional Director and Rebecca Tabor, Outreach Lead – Outreach and Funding, California High Speed Rail Authority
11-16-23	Week 7: Program vs Project Management Principles  Agenda  • Presentation by instructor and guest speaker (planned)  • In-class Review of Draft Papers and Initial Feedback  • Discussion of Reading Reflections  Readings:
	HSR Text - Emerging Challenges, Chapter 8  Management Text #2 (The Excellence Dividend) - Section 4, Chapters 9-10
	Research Assignment - Draft Paper - due at the beginning of class
	Reading Reflections noted above for this class are due
	Guest Speaker: Chuck Morganson, PE, HNTB – Program vs Project Management Principles
11-23-23	No Class – Happy Thanksgiving
11-30-23	Week 8: Strategic Plan Development and Governance of Rail Infrastructure Projects Agenda  • Presentation by instructor and guest speaker • Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapters 9 and 10 Management Text #2 (The Excellence Dividend) - Section 5, Chapters 11-12 Reading Reflections noted above for this class are due  Guest Speaker: Joseph Chroston-Bell, Network Rail Consulting - Strategic Plan Development and Governance of Rail Infrastructure Projects

Class	
Date	Class Activities, Readings, & Assignments
12-7-23	Week 9: Operations Planning - Introduction to Rail Operations and Service Planning Agenda  • Presentation by instructor and guest speaker (planned) • In-class Peer Review of Draft Presentation (Slides Only) and Discussion • Discussion of Reading Reflections
	Readings: HSR Text - Emerging Challenges, Chapters 11, 12, 13 Management Text #2 (The Excellence Dividend) - Section 6, Chapters 13-15
	In-Class Presentation - Draft Presentation (Slides Only) - due at the beginning of class
	Reading Reflections noted above for this class are due
	Guest Speaker: Paul Hebditch, Network Rail Consulting – CHSRA Project, Lead Operations Planning – Operations Planning - Introduction to Rail Operations and Service Planning
12-14-23	Week 10: Experiences in Leadership and Management, Class paper presentations, wrap-up
	Agenda
	<ul><li>Discussion of Reading Reflections</li><li>Class Presentations</li></ul>
	<ul> <li>Class Presentations</li> <li>Course Summary/Wrap-up/Feedback</li> </ul>
	Research Assignment - Final Paper - due at the beginning of class
	In-Class Presentation – Final Presentation – due at the beginning of class
	Guest Speakers: Michelle Bouchard, Caltrain – General Manager; Rachel Vandenberg, Rheia Consulting – President/Principal/Founder; David Schlesinger, Parsons Corporation – Project Manager and SJSU MSTM Alumni