

INDE 582 Class Syllabus - Technical Leadership

Class 1: Introduction

- Differences and similarities between management and leadership
- What is technical leadership?
- Knowing yourself and leadership styles
 - Myers-Briggs Personality assessment
- **Assignment (due after Class 1, 2-3 pages):** Exercise #1 in Technical Leadership Begins with Knowing Yourself and *brief career summary*.
- Reading:
 - Technical Leadership Begins with Knowing Yourself, T. Ross
 - “What Makes a Leader,” Goleman, Daniel, HBR Jan. 2004
 - “Managing Oneself,” Drucker, Peter, F., HBR 1999
 - “Social Intelligence and the Biology of Leadership” by Daniel Goleman and Richard Boyatzis, HBR Sept. 2008
 - Recommended Reading: Quick Guide to the 16 Personality Types in Organizations: Understanding Personality Differences in the Workplace, Berens, Linda V., et. al., 2001
- **Class 2: Working in Teams**
 - Do engineers typically fall into any personality category?
 - When are teams necessary?
 - Leading from the middle
 - Often have responsibility without authority
 - Using persuasion
 - Organizational Analysis
 - **Discipline of Teams: Duke Power Co., Fall Protection Team, Video**
 - Reading:
 - “The Leader’s Guide to Corporate Culture,” Boris Groysberg, Jeremiah Lee, Jesse Price, J. Yo-Jud Cheng, HBR Dec. 31, 2017
 - “Why Teams Don’t Work” by J. Richard Hackman and Diane Coutu, HBR May 2009
 - “The Discipline of Teams” by Jon Katzenbach and Douglas K. Smith, HBR Vol. 17, 1993, P111-120.
- **Class 3: Leading a Team**
 - The transition from engineer to lead
 - Extrinsic vs. Intrinsic Motivation
 - Power, Empowerment & Delegation
 - Goal setting and objective definition
 - Case: **Ethicon Endo-Surgery video case**
 - **Assignment (due after Class 3):**
 - Exercise #2 in Technical Leadership Begins with Knowing Yourself
 - Map your organization’s culture as shown in “The Leader’s Guide to Corporate Culture”
 - Exercise #8 in Technical Leadership Begins with Knowing Yourself

- Reading
 - “Building Your Company’s Vision” by James C. Collins and Jerry I. Porras, HBR Sept-Oct 1996
 - “Hot Groups,” by Harold J. Leavitt and Jean Lipman-Blumen, HBR July-Aug. 1995.
 - “Four Lessons in Adaptive Leadership,” by Michael Useem, HBR Nov. 2010, p. 87.

- **Class 4: Creativity and Innovation**
 - Differences and similarities leading technical people
 - Encouraging creativity
 - Intrapreneurship
 - **Assignment (due before Class 4, 1.5-2 pages): IDEO Case Study and Video**
 - “IDEO Product Development,” HBR Case 9-600-143, Oct. 4, 2000.
 1. How would you characterize IDEO's process, organization, culture and management?
 2. Decision point: Should IDEO accept the Visor project as is (on a dramatically reduced schedule)? Should they try to persuade Handspring's management to change its aggressive launch schedule? Or should they simply decline the project? In your discussions, please consider the IDEO and Handspring perspectives.
 - **Assignment (due before Class 4):** Exercises #5 & #6 in Technical Leadership Begins with Knowing Yourself
 - Reading
 - “Leadership for Change, Enduring Skills for Change Masters,” Kanter, Rosabeth, HBR 9-304-062, HBR Nov. 2003.
 - “Creativity and the Role of the Leader” by Teresa M. Amabile and Mukti Khaire, HBR Oct. 2008
 - “The Innovator’s DNA,” by Jeffrey Dyer, Hal Gregersen and Clayton Christensen, HBR Dec. 2009, p. 60.

- **Class 5: Communication**
 - Communication Tools: decision trees, matrices, models
 - Technical Communication
 - Written: emails, proposals, memos, technical reports
 - Verbal: team meetings, team presentations, executive meetings
 - Non-verbal
 - Graphical
 - **Nonverbal Communication: Distinguishing Truth and Lies, Video**
 - **Assignment:** Write a response to the Request for Proposal (RFP) given in attached documentation.
 - **Assignment:** Exercise #4 in Technical Leadership Begins with Knowing Yourself
 - Reading
 - “Nixing Engineerese” by Jean Thilmany, Mechanical Engineering Magazine Aug. 2009, p. 30.
 - “How to Become an Authentic Speaker” by Nick Morgan, HBR Nov. 2008

- “Nonverbal Communication in Negotiation,” Michael A. Wheeler, Dana Nelson, HBR Feb. 10, 2003
 - Recommended Reading: Write to the Top: Writing for Corporate Success, Dumaine, Deborah, 2004.
- **Class 6: Team Operations & Conflict Resolution**
 - Types of Meetings
 - Running Effective Meetings
 - Dealing with Conflict
 - Case: “The Satera Team at Imatron Systems”, Harvard Business School Cases; Jan. 2003, p1, 13p
 - **Assignment (due before Class 6, ~1 page):** What would you do in Gary Pinto’s position? What are some of the root causes of the conflict between Lovas and Bennett? How should the structural design proceed? How should Gary Pinto have Lovas and Bennett move forward with the project?
 - Reading
 - “Stop Wasting Valuable Time” by Michael C. Mankins, HBR, Sept. 2004
 - “How Management Teams Can Have a Good Fight” by Kathleen M. Eisenhardt, Jean L. Kahwajy, and L.J. Bourgeois III, HBR, July 1997.
- **Class 7: Decision Making and Negotiation Skills**
 - How to make good decisions
 - Decision making models and leadership
 - Technical negotiation
 - Reading
 - “What You Don’t Know About Making Decisions” by David A. Garvin and Michael A. Roberto, HBR, Sept. 2001.
 - “The Hidden Traps in Decision Making” by John Hammond, Ralph Keeney & Howard Raiffa, HBR Sept-Oct. 1998.
 - “Extreme Negotiations,” by Jeff Weiss, Aram Donigan, & Jonathan Hughes, HBR Nov. 2010, p. 67.
 - Recommended Reading: Getting to Yes by Roger Fisher and William Ury
- **Class 8: Ethics and Decision Making**
 - Ethics
 - Technical Integrity
 - 4-square decision matrix (teleology, deontology)
 - **Assignment:** Exercise #3 in Technical Leadership Begins with Knowing Yourself
 - **Assignment: Shuttle Columbia case study**
 - Part A due before class: Assignment given in class
 - Part B due after class: Assignment given in class
- **Class 9: Networking and Working on Diverse Teams**
 - Building and maintaining an effective network

- [Paths to Power: Heidi Roizen \(Video\) DVD](#)
 - Types of networks and their uses
 - Types of Diversity
 - Working with different cultures
 - Cultural diversity
 - Working across generations
 - **Assignment (due after Class 9):**
 - Map your professional network using the template as an example. For your direct contacts, note whether that person is part of your personal, operational, or strategic network. Map how two of your network members are hubs. How can they introduce you to others you need to know?
 - **Assignment:** Exercise #9 in Technical Leadership Begins with Knowing Yourself
 - Reading
 - “How Leaders Create and Use Networks,” Ibarra, Herminia and Hunter, Mark, HBR January 2007
 - “Managing People from 5 Generations,” Rebecca Knight, HBR Sept. 24, 2014
 - “Leading the Dispersed Workforce,” by Richard Reilly and Karen Sobel Lojeski, Mechanical Engineering Magazine, Nov. 2009.

- **Class 10: Teaching and Mentoring**
 - Importance of Mentoring – both up and down
 - How to teach technical skills
 - [Knowledge Management at JPL, Video](#)
 - Class review – Putting It All Together
 - Reading
 - “Finding and Grooming Breakthrough Innovators” Jeffrey Cohn, Jon Katzenbach, and Gus Vlask, HBR December, 2008
 - “Demystifying Mentoring,” Amy Gallo, HBR Jan. 31, 2011.

- **Final: Paper on Leadership Principles**
 - Read Managing Martians by Donna Shirley
 - Comment on how the following principles of technical leadership were applied through Donna Shirley’s experiences in the book. Cite references from the articles, case studies, and lectures to support your points.
 1. Working with personality differences
 2. Creating a Team
 3. Communication – analogies, building models
 4. Team Operations – structuring effective and creative meetings, team organization
 5. Leading a Creative Team
 6. Persuasion, Gaining Support and Negotiations
 7. Building a Professional Network
 8. Leveraging Diversity
 - Your outline should include all **eight** categories. Your final paper should only include the **five** that you feel you can discuss the best. You should identify at least two examples in each category, although, you can use more than two. Your outline should include page #'s of examples in the book that you will use in your paper and articles to be cited as

- supporting evidence of the leadership principles. It is due ~2 weeks before final paper is due.
- What did Donna Shirley do well and why (support your claims with specific citations of the background reading and lectures)? What could she have done better (again, support your claims with background)? How can you apply what you've learned from the book? What are your personal observations about the examples you chose? Summarize specific examples from the book to prove your points.

Final Paper Grading

Book Example Explanations	Pts. Possible
Category 1 -	6
Category 2 -	6
Category 3 -	6
Category 4 -	6
Category 5 -	6
Use of References	10
Your Opinion of Actions Taken in Book and personal reflection	10
Grammar	5
 Total	 55

Grading

Papers	25 pts/paper
1. Personality Assessment	
2. Proposal + Exercise	
3. Shuttle case conclusions	
Case Studies & Small Assignments	8 pts/case or exercise
1. Exercises for Class 3 & org. culture	
2. IDEO + Exercise	
3. Satera Team	
4. Shuttle Case prep + Exercise	
5. Network Map + Exercise	
Final Paper Outline	10 pts
Final Paper	55 pts
Class/Web Discussion	20 pts
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Total	200 pts

General Grading Criteria Tips

1. Be sure to answer *all* the questions.
2. Refer to the assigned readings for that class (or previous classes) to support your opinions and claims. In addition, reading the assigned articles throughout the quarter will help reduce the load when you write your final paper.
3. Briefly reflect on your own experiences as they apply to the assignment situation (where applicable).
4. Provide original thoughts and content in your assignments. While this class references many books and articles, the objective is to not simply repeat back that material in your assignments.
5. Speak up in class and online. This class should be an environment where we all learn from each other. There will generally be 2 pts./class awarded for in-class or online discussion. The total over the quarter is 2 pts./class x 10 classes = 20 pts.

Late Assignment Policy

Students should email Tamaira Ross with an explanation if they cannot turn an assignment in on time. If no note is provided, then the points will be reduced by 25%. The penalty will then increase to 50% off for turning it in after one week. Points for late case study preps are reduced 50% because the cases are discussed in class.