



University of Southern California
ISE 440 – Introduction to Social-Technical Systems and
Work Organizations

Time: TTh 12:00-1:50 pm

Location: DMC 201

Instructor: Yalda Khashe

Office: GER 241

Office Hours: By appointment on Wednesdays 2-3:30pm

Contact Info: khashe@usc.edu

<https://usc.zoom.us/my/yaldakhashe>

Course Producer: Shelby Wu

Contact Info: shwu@usc.edu

Course Description:

Design, modeling and analysis of complex systems. Social-technical systems (introduction, definition, interdisciplinary approach), challenges that they present, and the methods for resolving those challenges. Evolution of new technology and the impact of technology and automation on work environments. Types of Work systems and organization design and mapping. Work-technology-organization (WTO) integration/evaluation.

Text:

Handouts for lecture and case studies will be posted on Blackboard one week prior to class.

Special Topics Presentation:

Images of Organization, by Gareth Morgan, Sage Publications, Inc., Thousand Oaks, California. (2006)

Flexibility at Work: Critical Developments in the International Automobile Industry, by Pulignano, V., Stewart, P., Danford, A., and Richardson, M., Palgrave Macmillan Publishers, New York, N.Y. (2008)

Learning Objectives:

- ✓ Identifying the main components of a work system.
- ✓ Examine the role of workers in the current and future work systems.
- ✓ Discuss the role of personal characteristics of workers in job and organizational design.
- ✓ Examine the importance much power and influence in hierarchical organizations.
- ✓ Identify motivation factors for workers in organizational settings.
- ✓ Discuss decision making processes within and between organizational layers.
- ✓ Identify key decisions and decision makers regarding organizational processes and working conditions.
- ✓ Discuss and analyze the importance of automation in modern systems and its impact on organizational processes.
- ✓ Identify key communication factors within workers.
- ✓ Study the evolution of new technology in work environments
- ✓ Study and analyze complex socio-technical systems
- ✓ Identify and analyze the role of human and organizational factors in technological systems and their impact on society, environment, and current affairs

Course Expectations and Policies:

Course Expectations and Netiquette: To ensure a cooperative learning environment, each student is expected to read the text before each class meeting time, and prepare to actively participate during class discussions, team-related activities, presentations, and writings.

Netiquette is network etiquette; a set of rules that encourages appropriate and courteous online behavior. A short list of “Netiquette Rules for Class” is included on page 8 of this syllabus. Students are expected to engage in behaviors that enhance the learning environment. Our goal is to optimize the learning experience for all the students; therefore, disruptive behaviors are prohibited and will not be tolerated.

Participation and Attendance Policy: It is expected that students will attend class regularly and participate in the class discussion throughout the semester. Participation involves actively listening and volunteering answers to questions and moving the discussion along toward a shared understanding. The participation grade will be assigned at the end of the semester based on objective (contribution to class discussions, interaction with TA/Instructor inside and outside the classroom) and subjective (contributing meaningful questions/answers, illustrating comprehension of course material) assessment by the instructor. The participation rubric is included at the end of this syllabus.

Due Dates/Make-Up Work: Exams must be taken as scheduled. Assignments are due as scheduled. Make-ups will be allowed only if the student has contacted the professor before the due date, detailing a serious problem. There is no late submission for in-class assignments. Make-up midterm should be scheduled before the next instruction session and cannot be taken before the scheduled exam. Travel plans do not count as documented emergencies. Please consult the course outline before making any plans. The final exam date/time cannot be rescheduled.

Online Communication Policy: Students are encouraged to contact the instructor by USC email and schedule a meeting during office hours. In the subject line, indicate the course number and a very brief summary of the email. Simple questions will be answered by email, but for more complex discussions students may be instructed to schedule a zoom meeting.

Grading:

Letter Grades Table:

96-100	A	75-79	C+
91-95	A-	70-74	C
87-90	B+	65-69	C-
84-86	B	60-64	D+
80-83	B-	56-60*	D

* Grades less than 56: F

The final grade will be based on the above table combined with the cluster analysis of all the students' grades. Which will be explained in detail in the first class session.

The final course grade will be determined based on the following weights:

Exam 1	25 %
Final Exam	25 %
WTO Project	20 %
Special Topic Presentation	15 %
Participation/in-class exercises.....	15 %
Peer Evaluation	*

According to USC policy: “No student is allowed to retake a final examination or do extra work in a course after the semester has ended for purposes of improving [their] grade.”¹”

*Peer Evaluation will be reflected in the final Term Project grade and the participation grade

Assignment Submission: Homework descriptions will be posted on blackboard and assignments are due at the beginning of the class and should be submitted online through Blackboard. Electronic submission must be in MS Office formats.

Since creating, analytical, and critical thinking skills are part of the learning outcomes of this course, all assignments should be prepared by the student working individually or in groups. Students may not have another person or entity complete any substantive portion of the assignment. Developing strong competencies in these areas will prepare you for a competitive workplace. Therefore, using AI-generated tools is prohibited in this course, will be identified as plagiarism, and will be reported to the Office of Academic Integrity.

In-class Work, Class Discussions, and Final Participation Grade: This course is designed for ISE seniors, and one of the learning objectives is for the students to identify and analyze the relationship between the topics that are introduced in each session to the main pillars of industrial and systems engineering. Therefore, we encourage students' participation in class discussion. The participation grade will be assigned at the end of the semester, and 50% of the final participation grade is based on the in-class exercises and case studies. There is no make-up or late submission for in-class assignments. Three lowest grades will be dropped at the end of the semester.

Students will complete work assigned during class time, such as small group assignments, open-notes quizzes, and polls that count towards their in-class work grade. Case studies will be presented at the end of each topic (given the time availability) as an in-class group exercise. Each team will read a case and present it briefly. The questions associated with each case will be discussed in the class by all the students. There is no late submission for in-class exercises. Most activities are designed as group exercises; however, no credit will be given to team members who miss the exercises. Credit will be given for thoughtful completion. The lowest two scores on in-class work will be dropped.

¹ chrome-extension://efaidnbmninnbpcajpcgclcfndmkaj/https://esdcomm.usc.edu/arr/forms/ARR_Grade_Handbook.pdf

Tentative Course Outline²:

Week of		Topics	WTO Project ³
01	Jan 8	Introduction and Logistics of the Course Work, Technology and Organization	Project: Team formation
02	Jan 15	Introduction to Philosophies of work (Craft, Mass, Lean and Holacracy) and socio-technical systems	Project: Finalize your organization
03	Jan 22	Job Design, Organizational structure, and behavior (R-maps) <u>January 25 – Project Progress report</u>	<i>Due: Prepare a 7-minute presentation for your project proposal</i>
04	Jan 29	Process Measurement and Mapping February 1 - Team 1: Organizations as machines (IO⁴)	Project: Model the high-level process flow & R-Map
05	Feb 5	Project session⁵ February 6 - Team 2: Organizations as organisms (IO)	Project: Map the entire system & Define WTO Variables
06	Feb 12	Engineering teams and social-technical systems Personality & Theories of motivation	Project: Define the mismatches for each variable
07	Feb 19	Leadership, Power and Influence in Organizations February 20 - Team 3: Organizations as political systems (IO) Project session	
08	Feb 26	<u>February 27 - Midterm Project Presentation</u> <u>Feb 29 & March 1 - Midterm Exam (Take Home)</u>	<i>Due: Midterm Presentations</i>
09	March 4	Technological and organizational Alignment The impact of technology and automation on WTO variables March 7 - Team 4: Organizations as flux & transformation (IO)	Project: Analyze WTO Interactions
10	March 11	<i>Spring Recess - University Holiday</i>	
11	March 18	<i>Case Study - London Ambulance Service Disaster 1992</i> March 21 - Team 5: Learning and self-organizations (IO) Project session	Project: Design alternatives and offer suggestions to resolve mismatch problems
12	March 25	Principals of Lean & Six Sigma in socio-technical systems Continuous Process Improvement & organizational learning March 28 - Team 6: Flexibility and mass customization (FW) <u>March 28 - Project Progress report</u>	Project: Evaluation to measure the performance of the new system <i>Due: Prepare a 2-minute oral presentation on progress</i>
13	April 1	Organizational culture and quality of working life April 2 - Team 7: Organizations as cultures (IO) April 4 - Team 8: Flexibility and quality of working life (FW)	Project: Finalize the project and receive an approval from your contact in the company.
14	April 8	Designing ethical systems and the engineer's role in today's society The Rise of the Machines and UBI Project session	
15	April 15	<u>April 16 & 18 - Final Project Presentations</u>	<i>Due: Presentations (4/16-11:59pm)</i> <i>Due: Reports (4/22-11:59 pm)</i> <i>Due: Peer evaluations (4/22)</i>
16	April 22	External forces shaping an organization: capital, environment, new technology. <u>April 25 & 26 - Final Exam (Take Home)</u>	<i>Due: Course evaluation (4/24)</i>

² Schedule may be revised to accommodate the content and pace of the class learning process. Due dates and case studies are subject to change.

³ Check Blackboard submission links for the due date and assignment instructions.

⁴ IO: Images of the Organization

⁵ All team members should be present in class to work on their project and for the members to receive participation credit. Each team will submit a summary of the work they have done during the session by the end of the class.

Special Topics Presentation

Our goal is to enhance your learning experience, by “flipping” the classroom for a small portion of the course. According to the Accreditation Board of Engineering and Technology (ABET), one of the most important qualities of a good engineer is the ability to read, research, reduce and present a topic to a specific audience. Also, according to the Journal of Engineering Education, allowing the students to read/learn outside the class and present their own findings is a better mode of learning than listening to lectures only. The quality of contents and the presentations may indeed vary from one team to another; however, we know that the depth of learning for the presenting team is significantly higher and the effects are longer lasting.

The teams will work on the topic assigned to them. Each topic is inspired by a section of the textbooks (further discussed below). Team presentations should include a summary of the chapter content and also the discussion of the topic based on the team’s personal research. The students are encouraged to explore and bring data and concepts from outside the book to complement the chapter content. The teams’ performance will be evaluated on the content of the presentation, presentation style and professionalism, and the ability to engage the students in the presentation and the following Q&A. The team should prepare at least three Questions/Answers at the end of the presentation. These questions should reflect the summary of the presentation and your own analysis and criticism. The rubric for the chapter presentation is as follow:

Criteria	%	Excellent
Content of the presentation	70	<ul style="list-style-type: none">• Covering the main topics discussed in the book chapter• Relating the topics to course material discussed in lectures• Supplemental external research included in the presentation• Providing relevant and informative examples
Presentation style and professionalism	15	<ul style="list-style-type: none">• Professional slides (Fonts, format, etc.)• Presentation style• Team members’ participation in the presentation• Multimedia and other creative approaches to presentation
The ability to engage the students	15	<ul style="list-style-type: none">• Q&A• Using case studies and other creative approaches to engage the students

Each team has about 30 minutes for their presentations including Q/A. We will do a follow-up briefing, and a summary of the topic discussed as a class after each presentation.

Images of Organization: This book discusses the behavior of an organization from multiple viewpoints or “images.” These images are metaphors that govern specific organizational behavior. You may choose one of the following cases to supplement your presentation, You may modify a case as necessary, or find one from other sources:<http://college.cengage.com/business/moorhead/organizational/6e/students/cases/index.html>

Flexibility at Work: The concept of lean operation has been a leading philosophy of work design in the past several decades. This book is a critical assessment of the lean systems in the international automobile industry. The book is written with a case

study approach. The main question of this book is: *Does the lean system provide a superior treatment of labor in global automobile industry or not?*

WTO Project

Topic: This project is designed to explore the field of WTO in more depth in a real organization/company. The project milestones are indicated on the course outline.

Midterm and Final Presentation: Teams will present the project status in class, with one project briefing (mid-semester) and a final presentation (see Course Schedule for dates). The progress report and the midterm presentation are pass/no-pass. The rubric for the final team presentation is as follows:

Criteria	%	Excellent
Content of the presentation	80	<ul style="list-style-type: none"> • Covering the main topics discussed in the book chapter • Relating the topics to course material discussed in lectures • Supplemental external research included in the presentation • Providing relevant and informative examples
Presentation style and professionalism	20	<ul style="list-style-type: none"> • Professional slides (Fonts, format, etc.) • Presentation style • Team members’ participation in the presentation • Multimedia and other creative approaches to presentation

Final Project report: The report should include all the steps that your team has taken to define and analyze the problem and suggest recommendation and evaluation measures. The paper organization guideline is posted on Blackboard under the *Term Project* section.

Peer Evaluation and Final Grade: The final project grade is the average of the final presentation and the final term paper grades. All team members will receive equal grades, contingent on team members’ confirmation of their participation, however, each member has a chance to evaluate the other members at the end of the semester. Peer Evaluation will be reflected in the final Term Project grade and the participation grade. Please note that if you fail to submit your peer evaluation on time, you will not receive any points towards your own evaluation.

Criterion		Name			
(Assign 0 to 5 for each criterion)		Team Member 1	Team Member 2	Team Member 3	Team Member 4
1	Ability to communicate effectively: listening and talking with respect				
2	Willingness to help others				
3	Creativity in performing the tasks assigned				
4	Ability to offer solutions and accept constructive criticism				
5	Spend time and work hard to finish the project				
6	Availability and flexibility				
Total Points/6					

Netiquette Rules for Class

Netiquette is network etiquette; a set of rules that encourages appropriate and courteous online behavior.

- Above all, show respect to your peers and the instructor.
- Respect the opinions of others, regardless of how much you disagree.
- If you are writing an email or discussion post in anger, the content of your text will probably come off as disrespectful. Give yourself time to calm down and show respect.
- Reflect kindness and concern for your colleagues, you never know when someone else is having the worst day of their life.
- Allow others to save face. When possible, allow others the option of coming to the same conclusion, rather than pushing an opinion or answer on them. Instead of saying, “That’s not right, it should be purple,” consider saying this instead, “Would purple be a better color in this situation?”
- Address your instructor with their full title (e.g. Professor or Dr.) unless they explicitly tell you otherwise.
- Let others know how you would like to be addressed and address others as they would like to be addressed.
- Limit your use of the exclamation point.
- Avoid using all caps. IT IS COMMONLY INTERPRETED AS YELLING.
- Humor is difficult to interpret in text-based communication. Consider avoiding it in professional and academic communication.
- Check your spelling and grammar before hitting send or submit. This is an academic community and part of being professional is checking and double-checking your work.
- Use professional language and avoid using social media language and characters (i.e. don’t use slang, text shortcuts, such as “u” instead of “you,” emojis, emoticons).
- Use appropriate fonts.
- Use appropriate font-size: 12 font for papers (you can use 10 for tables); 11 or 12 in emails or discussion board posts.
- In emails, be brief. After greetings, but the most important point in the first sentence. Do not make the reader get halfway (or all the way) through the email before you present the reason for the email.
- In the discussion board, expand on your thoughts. Explain why you agree with them or why you think it’s a great post.
- Give details to your discussion post. What was your source and what pages were you looking at?

A more comprehensive list of communication norms is posted on the course page on Blackboard.

Participation Rubric

Excellent Performance	Fair / Average Performance	Unacceptable Performance
<ul style="list-style-type: none"> • Initiates information relative to topics discussed. • Accurately exhibits knowledge of assignment content. • Clarifies points that others may not understand. • Shares personal experiences or opinions related to the topic. • Offers relevant/succinct input to class. • Actively participates in labs and class exercises. • Demonstrates ability to apply, analyze, evaluate & synthesize course material. • Demonstrates willingness to attempt to answer unpopular questions. • Builds on other students' contributions 	<ul style="list-style-type: none"> • Participates in group discussions when asked. • Demonstrates knowledge of course material. • Offers clear, concise, "good" information on class assignments. • Offers input, but tends to reiterate the intuitive • Attends class regularly 	<ul style="list-style-type: none"> • Fails to participate even when specifically asked. • Gives no input to discussions. • Does not demonstrate knowledge of the readings. • Shows up to class: does nothing. • Distracts group/class. • Irrelevant discussion

Statement on Academic Conduct and Support Systems:

Academic Integrity: The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#). Please ask your instructor if you are unsure what constitutes

unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations: USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.