

# SE 5390 Special topics: SEP exam Preparation

## Master of Science in Systems Engineering

### Course Description

INCOSE, the International Council on Systems Engineering, provides certification exams, namely, the ASEP (Associate Systems Engineering Professional), CSEP (Certified Systems Engineering Professional), and ESEP (Expert Systems Engineering Professional) certification. The INCOSE Systems Engineering Handbook v4, which is based on and aligned with International Standard ISO/IEC/IEEE 15288, provides the basis for the exam portion of the ASEP and CSEP certifications. This course is designed to increase your understanding of the SE Handbook v4, from which certification exam questions are written. Students read all the chapters and appendixes related to technical aspects, share its point of view and questions, participate in discussions, practice exam-type questions, and should register to take the SEP exam. Students also work in self-managed teams and create interactive material to study.

#### By the end of this course, participants will be able to:

1. Increase proficiency in the INCOSE CSEP / ASEP Certification Exam based on the INCOSE SE Handbook v4
2. Practice exam-type questions
3. Design study material for possible exam-type questions
4. Inspect System engineering concepts, terms and life cycles
5. Discuss ISO/IEC/IEEE 15288 Technical processes
6. Analyze ISO/IEC/IEEE 15288 Technical Management processes
7. Examine ISO/IEC/IEEE 15288 Agreement & Organizational and Project-enabling processes
8. Distinguish application domains of Systems Engineering
9. Compare and contrast cross-cutting Systems Engineering methods
10. Examine specialty engineering activities
11. Outperform in self-directed teams
12. Manage team performance

### Instructor

Dr. Oscar A. Mondragon

Contact Information	
<i>Location</i>	Engineering Annex A-242
<i>Phone</i>	(915) 747 – 8015
<i>e-mail</i>	oamondragon@utep.edu
<i>Online office hours</i>	M 9:00 am to 10:30 am M 6:00 pm to 7:15 pm

*Note:*

- *For personal issues, students shall contact the instructor by e-mail.*
- *For class related inquiries, students shall use the course Discussion Board by creating a new thread.*

## Course Credits & Acknowledgements

This course was designed by Dr. Eric Smith and Dr. Oscar Mondragon. We acknowledge the contribution of the following individuals and organizations: UTEP Engineering Librarians for creating MSSE 5390 library guide; UTEP Academic Technologies for uploading the course information into the course Blackboard shell and performing quality check; Industrial, Manufacturing, and Systems Engineering department designers Jose Terrazas & Sandra Minjares for animating the interactive presentations; Dr. Mike Yokel from Lockheed Martin Aeronautics-Fort Worth, Texas for sharing the “Dis Graph” that depicts the interactions (inputs and outputs) among System Engineering processes; and UTEP students that contributed with practice questions for the INCOSE ASEP practice exam.

## Required Readings Material

You will need the following reading materials throughout this course:

- Walden, D. D., Roedler, G. J., Forsberg, K. J., Hamelin, R. D., & Shortell, T. M. (Eds.). (2015). *INCOSE Systems Engineering Handbook: A guide for system life cycle processes and activities* (4th ed.). Hoboken, NJ: Wiley

Other readings are listed in the [UTEP Library Guide for MSSE 5341](#). Please see the “Required Readings” section for readings assigned to each of the course modules.

## Student Resources

Student resources include the course rubrics, instructions for collaborative work, and the links for the Library Guide, UTEP Bookstore, and UTEP technology support. The collaborative section includes the teams and its members for this course. The student resources section is located in the home page of this course.

## Summary of Course Structure

Content is provided in seven modules that are released every two weeks. Each module will have a menu to guide participants through the content and identify discussion board postings and/or activities to be completed on Blackboard’s course shell. The first module provides course overview and objectives, facilitates attendee’s introductions and team building, and discusses SE main concepts addressed in the course. The seven modules for this course follows:

#	Module Name
1	Introduction to INCOSE SE Handbook v4
2	Technical Processes
3	Technical Processes (continued)
4	Technical Management Processes
5	Agreement Processes
6	Tailoring Processes and Application of SE
7	Specialty Engineering Activities

## Class Interaction and Communication

### Being Successful Online

This section has some tips and tricks about how to be successful online. Online learning is not a spectator sport. It is everyone's responsibility to participate as fully as they can so everyone can get the most from the experience. Here are some simple rules to follow to ensure your participation and engagement in the learning process:

- Ask questions: If you don't know the answer, someone else will. The discussion board is the area for asking questions related to content OR any problems (related to the class) you are having. Make sure that you have clearly indicated the subject of your message.
- Reach out to others: Offer a fact, article, link, or other item that can help others learn something you can share.
- Be appropriate: The online classroom is not the place for insulting or insensitive comments, attacks, or venting. Inappropriate behavior can be subject to disciplinary action, as well.
- Be diplomatic: When sending messages on emotionally charged topics, I recommend that you write the message and then walk away for at least an hour before re-reading the message and then sending it. Re-reading emotionally charged messages ensures that they are constructive instead of destructive. Think of the person at the other end.
- Stay focused: Stay on topic to increase the efficiency of your learning.

### Grading Criteria

The following scale is used for assigning letter grades.

A	[90 % and above]
B	[80 % - 89 %]
C	[70 % - 79%]
D	[60 % - 69 %]
F	[0 % - 59%]

Note that there will not be "rounding up" automatically. The instructor does reserve the right to lower the grade scale if it is deemed appropriate.

## Course Calendar

CALENDAR (Spring 2019)	
Module 1	Week 1: 01/21/2019
Introduction to INCOSE SE Handbook v4	Week 2: 01/28/2019
Module 2	Week 3: 02/04/2019
Technical Processes (continued 8..14)	Week 4: 02/11/2019
Module 3	Week 5: 02/18/2019
Technical Processes (continued 8..14)	Week 6: 02/25/2019
Module 4	Week 7: 03/04/2019
Technical Management Processes	Week 8: 03/11/2019
<i>Spring Break Week (No activities)</i>	Week 8: 03/18/2019
Module 5	Week 9: 03/25/2019
Agreement Processes & Organization and Project-enabling processes	Week 10: 04/01/2019
Module 6	Week 11: 04/08/2019
Tailoring Processes and Application of SE	Week 12: 04/15/2019
Module 7	Week 13: 04/22/2019
Specialty Engineering Activities	Week 14: 04/29/2019
	Final work on 05/03

**Hint:** Some assignments of "Week N" are delivered on "Week N+1".  
That is some homework of week 1 are delivered in week 2.

## Student Participation

Students bring a wealth of knowledge and experience to this course from their respective fields; however, students' knowledge and technological expertise vary. The course is designed to be an enjoyable learning experience for everyone, with support for every participant. This course will immerse students into a community of practice so that students can develop skills and knowledge that facilitate their professional development.

Students are expected to complete all weekly content and to participate actively and respectfully on discussion boards, chats, and blogs, as well as synchronous or asynchronous collaboration tools where the main course concepts are discussed and class projects are developed. Furthermore, students should finish quizzes and deliver complete quality assignments and projects on time.

The following policies will be enforced:

- Students must complete all discussion boards assigned for each week to receive a weekly participation grade.
- Students who miss two major assignments will be dropped from the course.
- Students who have little or no activity in the course will be dropped.

## Assessing Student Learning

This course uses several different methods to assess student learning. A description of each method follows:

**Peer Review:** In a peer review, students can get the feedback they need to become more successful in a less stressful situation. For peer review to be successful, the instructor will provide clear guidelines and/or questions to be answered by the student reviewers.

**Self-Reflection/Self-Evaluation:** Reflection and self-evaluation develop metacognitive thinking. By engaging in self-review, students can carry their learning into other parts of their lives and take more responsibility for their own learning. Although not all students take self-evaluation seriously, those who do will benefit greatly from it.

**Group Problem Solving:** When students work together to solve a problem or complete a project, they learn from each other and expand learning for all. Student-to-student interaction is increased, which in turn increases student learning and assignment completion. The group problem includes group-member evaluation so that students can peer-evaluate each other's work. Also in place are a team/group charter and procedures for when disagreements happen within the group; these ground rules make for a much smoother and more effective group experience for all. For this class, consider the following example:

*Team structure:* There is a team leader and the following role managers: Planning, Customer Interface, Design, Implementation, Quality, and Process. The team leader resolves any technical problems. Personal problems are first handled by the team leader and escalated to the instructor if necessary. Each role manager has the authority to assign tasks, review status, and resolve issues within his or her technical scope.

**Quizzes:** Moodle supports many different types of quizzes and several types of questions (such as multiple-choice, true/false, matching, short-answer, and essay).

**Rubrics:** Rubrics are an objective way of assessing work. They provide clear criteria that can be shared with students so that they know how they will be graded. The criteria used for each assignment will be indicated as part of the assignment.

## Course Rules and Policies

### Ground Rules for Discussion Board Participation

You should write at least 100 words in your discussion posting in response to the provided guided questions. You should also reply (at least with a 50 words for each response) to the entries of at least two of your classmates for each assigned discussion (unless noted otherwise). Refer to the discussion board and course content for further details on each assignment.

**Remember your place:** A Web-based classroom is still a classroom, and comments that would be inappropriate in a regular classroom are likely to be inappropriate in a Web-based course as well.

**This is permanent:** Think carefully about the content of your message before contributing it. Once sent to the group, there is no taking it back. Members of the class and the instructor will be reading any postings.

**Respect your fellow students and instructor.** Respect and courtesy must be provided to classmates and to instructor at all times. Do not use inappropriate language, all capital letters, or language short cuts. No harassment, flaming, or inappropriate postings will be tolerated.

**Giving feedback professionally:** Write constructive feedback by addressing the idea, not the person. People may have different points, positions and believes in the aspects being discussed. The discussion must be limited to the aspects/ideas only. Personal attacks are not tolerated. When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face to face situation.

**Be forgiving:** If someone states something that you find offensive, mention this directly to the instructor. Remember that the person contributing to the discussion is also new to this form of communication. What you find offensive may quite possibly have been unintended and can best be cleared up by the instructor.

**Language:** Given the absence of face-to-face clues, written text can easily be misinterpreted. Avoid the use of strong or offensive language and the excessive use of exclamation points. If you feel particularly strongly about a point, it may be best to write it first as a draft and then to review it, before posting it, in order to remove any strong language.

**Test for clarity:** Messages may often appear perfectly clear to you as you compose them, but turn out to be perfectly obtuse to your reader. One way to test for clarity is to read your message aloud to see if it flows smoothly. If you can read it to another person before posting it, even better.

**Submit quality work.** Online entries should be written in Standard Writing English with edited spelling, grammar, and punctuation. Although the grammar and spelling of a message typically are not graded, they do reflect on you, and your audience might not be able to decode misspelled words or poorly constructed sentences. It is a good practice to compose and check your comments in a word-processor before posting them.

**Follow the parameters / Stick to the point:** Follow the posting requirements and parameters set up by your professor. Contributions to a discussion should have a clear subject header, and you need to stick to the subject. Don't waste others' time by going off on irrelevant tangents.

**Read first, write later:** Don't add your comments to a discussion before reading the comments of other students unless the assignment specifically asks you to. Ignoring your fellow students is rude. Avoid repetition of what someone else has already said. Add something new to the discussion. Comments related to the content of previous messages should be posted under them to keep related topics organized, and you should specify the person and the particular point you are following up on.

**Quality posts get credit:** There is no credit for yes/no answers. Posts should justify positions and provide specific examples. Students must demonstrate that they have read the assignment and their classmates' comments carefully and thoughtfully.

**Meet the deadline:** Be sure to post in a timely fashion to receive credit for attendance and for the discussion. Pay close attention to the posted deadlines. The deadline for postings is 11:59:00 p.m. MST every Thursday. Replies to colleagues are due by 11:59 p.m. every Saturday.

**Team work:** Students will work on teams. Students should develop soft skills to properly and effectively work as a team member. Team members are expected to have a positive attitude, deliver quality work on time, participate in peer reviews, and support other team members. The team has empowerment and it is expected that the team should use it professionally and ethically. If a team member is not working or performing poorly or irresponsible, the team must let the member know about the problem (**show a yellow card**) and offer him/her help. If team member continues performing poorly or irresponsible, the team has the empowerment to remove him/her from the team (**show a red card**). A student can only receive credit for the team project work, if he/she is equally contributing member of a team. Yellow and red cards are designated by all the team members but the affected part. Team leader shall send an e-mail to the instructor and all team members including the affected team member with a brief explanation of the circumstances.

### Academic Dishonesty

Academic dishonesty is prohibited and is considered a violation of the *UTEP Handbook of Operating Procedures*. It includes, but is not limited to, cheating, plagiarism, collusion, and fabrication.

- Cheating can involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports.
- Plagiarism occurs when someone intentionally or knowingly represents another person's words or ideas as his or her own.
- Collusion involves unauthorized collaboration with another person or group to commit any academically dishonest act.
- Fabrication occurs when false information is included on a works-cited page.

Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Violations will be taken seriously and will be referred to the Office of Student Conduct and Conflict Resolution for possible disciplinary action. Students may be suspended or expelled from UTEP for such actions. You can find more information in the *UTEP Handbook of Operating Procedures*, under the heading "4.14: Alleged Student Scholastic Dishonesty," and in the Regents' Rules and Regulations.

### Policy on Copyright and Fair Use

The University requires all members of its community to follow copyright and fair-use requirements. Students are individually and solely responsible for violations of copyright and fair-use laws. The University will neither protect nor defend students and will not assume any responsibility for students

who violate fair-use laws. Violations of copyright laws can result in federal and state civil penalties and criminal liability, as well as disciplinary action under University policies.

### Other References

- UTEP Handbook of Operating Procedures @ <http://admin.utep.edu/Default.aspx?alias=admin.utep.edu/hoop>
- UTEP Office of Student Life @ <http://sa.utep.edu/studentlife/#student-conduct>
- UTEP Office of Institutional Compliance @ <http://admin.utep.edu/Default.aspx?alias=admin.utep.edu/hoop>
- UT Regents' Rules and Regulations @ <http://www.utsystem.edu/bor/rules/#A6>

### Disability Statement

If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit the office located in UTEP Union East, Room 106.

For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass).

### Software Requirements

You will need the following software on your computers to efficiently work in this course. In some cases your computer may already have some of these programs installed.

- Adobe Acrobat Reader. You can get the program by going to <http://www.adobe.com/> and then clicking on the icon on the center of the screen which says 'Get Adobe Reader'? Follow instructions to install the reader.
- Adobe Flash Player. You can get the player by going to <http://www.adobe.com/> and then clicking on 'Get Adobe Flash Player?'. Follow instructions to install the player.
- Apple QuickTime Player. You can get this player by going to <http://www.apple.com/>. Once there, click on the 'Downloads'? tab on the top of the page and then click on QuickTime 'Download'? and follow instructions.
- Microsoft Office. I recommend buying this if you do not have any word processing software or presentation software. As students, you can generally buy this whole package for about \$25, far less than the store price of approximately \$400.
- Email tool with file attachment capability. Please use your UTEP email account.
  - If you do not have a UTEP e-mail account, please get one immediately. Here is how:
    - Go to <https://newaccount.utep.edu/>.
    - Create your account (remember that your date of birth is in the form mm/dd/yyyy: two digits for the month and day, and four digits for the year).
    - After you create your account, you must wait 48 hours, then go back to the site and click on "Check on existing account." Enter your UTEP Student ID Number (e.g. 80XXXXXX) and date of birth, and you will get your login name and password. Please let one of us know if you have any difficulty. You may also call the UTEP HELP desk at (915) 747 - 5257.
    - The HELP desk hours are given below:  
Mon-Fri 7:00am - 8:00pm (Mountain Time)  
SAT 9:00am - 1:00pm (Mountain Time)  
SUN CLOSED



## Equipment Requirements

You **need a personal computer** with administrative privileges so that you may take the quizzes at the end of the modules. In addition, you need to install Respondus Lockdown Browser. You will also install other software applications that requires administration privileges. You shall be aware that some organizations protect their computer equipment with firewalls, other security applications, and does not provide administrative privileges to their employees. If you are using a computer from your work, you may not be able to take the quizzes or to install software applications required in some classes; however, this is not a valid excuse for not doing a quiz or uploading to blackboard your assignment.

## Glossary

**Cyber-Harassment**, or the use of a computer to cause a person harm such as anxiety, distress or psychological harm, including abusive, threatening or hateful emails and messages and the posting of derogatory information online.

**Cyberbullying**, or intimidating messages sent directly to the victim via email or other Internet communication mediums, and/or the use of technological means to interfere with a victim's use of the Internet such as hacking or denial of services attacks. This can also include spreading rumors about the victim in internet forums or discussion boards; subscribing the victim to unwanted online services or sending messages to others in the victim's name.

**Cyberstalking**, or threatening behavior or unwanted advances directed at another using the Internet and other forms of online and computer communications. With personal information becoming readily available to an increasing number of people through the Internet and other advanced technology, state legislators are addressing the problem of stalkers who harass and threaten their victims over the World Wide Web.

**Flaming**, or hostile and insulting interaction between internet users. It is frequently the result of the discussion of heated real-world issues such as politics, religion, and philosophy, or of issues that polarize subpopulations, but can also be provoked by seemingly trivial differences. **Deliberate flaming**, as opposed to flaming as a result of emotional discussions, is carried out by individuals who are specifically motivated to incite flaming. Usually, are subtler than their counterparts, or trolls, who also post inflammatory messages in an online community. Their primary intent is to provoke readers into an emotional response and disrupt normal, on-topic, discussion.

**Plagiarism**, or the presentation of another person's work as your own, whether you mean to or not (i.e. copying parts of or whole papers off the Internet).

**Collusion**, or lending work to another person to submit as his or her own.

**Fabrication**, or deliberately creating false information on a works cited page.