

ENGR 365 – Global Engineering and Technology

Summer 2018, China

**Course Syllabus
3 Credits**

Course Description: Fundamental skills and cultural responsiveness in engineering and technology on a multidisciplinary team in a global context. Focus is given to effective communication (across different cultures and either synchronous or asynchronous), clear understanding of engineering standards, knowledge of project development process, commitment to ethics, professionalism, interdisciplinary team-work and equality, and appreciation for global interconnectedness of various practices.

Liberal Studies Program Learning Objectives:

This course satisfies the P6 (World Cultures) Perspective requirement of the Liberal Studies program.

In this course, the following Learning Goals (**2, 3, 4 and 6d**) for the Liberal Studies Program are emphasized. Students will demonstrate the ability to:

2. Interpret and use numerical, written, oral, and visual data
3. Read with comprehension; write and speak clearly, coherently, and effectively; adapt modes of communication appropriate to an audience
4. Analyze arguments critically
6. Understand
 - d) Scientific concepts and methods as well as contemporary issues in science and technology;

Students in P6 courses will

- Study significant contemporary issues in a global and multi-disciplinary setting, which may include the consideration of ethnicity, gender, religion, or race;
- Recognize the nature of cultural diversity and global interdependence and the challenges of solving problems and reaching understanding across national and cultural divides;
- Be actively engaged in the experience of synthesis information from a variety of disciplines which might include the natural and social sciences, history, the humanities, and the arts;
- Appreciate the responsibility of educated people to be informed about current public issues.

Course Objectives: The objectives of this course are aligned with the objectives of the Liberal Studies Program, as shown below. The students will be able to

- I. Gain factual knowledge about global engineering and technology practices. Collect, interpret and use information related to engineering and technology practices within local, national, and international contexts. Apprehend the

impact of engineering and technology solutions in a global, economic, environmental, societal and global context. [to achieve Liberal Studies Objectives **2, 3**]

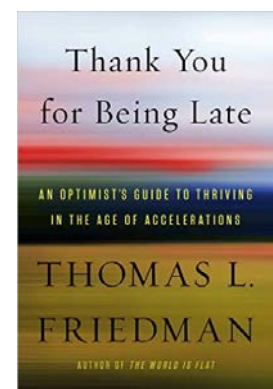
- II. Reflect upon the principles, generalizations and theories of global engineering and technology practices beyond United States. Articulate the importance of cultural disparities and similarities when developing engineering practices. Understand and is committed to address professional and ethical responsibilities including a respect for diversity. [to achieve Liberal Studies Objective **4**]
- III. Critically examine complex issues of a global nature in contemporary engineering and technology practices. Recognize contemporary issues. Understand the nature and importance of interrelationships and interdependence between and among individuals, countries, and regions. [to achieve Liberal Studies Objectives **4, 6d**]
- IV. Identify, formulate, analyze, and solve broadly-defined engineering and technology problems. Apply knowledge of global engineering and technology practices to prepare project statements with clear project goals and objectives. Analyze project requirements to propose potential designs, determine the available resources, and apply practical constraints. [to achieve Liberal Studies Objectives **3, 4, 6d**]
- V. Contribute as a member of a multidisciplinary team to create a project schedule and plan. Function on multidisciplinary teams effectively as a member or leader. Organize and participate in effective team meetings. Develop and document the solution to engineering design challenges as part of a team. Propose clearly-defined metrics to evaluate the performance of a solution. [to achieve Liberal Studies Objective **6d**]
- VI. Communicate in an engineering environment through technical writing, verbal communication, and delivery of presentation. Develop organizational and communication skills that facilitate active involvement in, and contributions to projects in a wide variety of disciplines. Apply written, oral, and graphical communication in both technical and non-technical environments effectively; and identify and use appropriate technical literature. [to achieve Liberal Studies Objectives **3, 4**]

Prerequisites: None.

Corequisites: None.

Required Text: Thomas L. Friedman (Nov 22, 2016). Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations. ISBN: 978-0374273538

An introduction of the textbook: In "Thank You for Being Late", a work unlike anything he has attempted before, Thomas L. Friedman exposes the tectonic movements that are reshaping the world today and explains how to get the most out of them and cushion their worst impacts. You will never look at the world the same way again after you read



this book: how you understand the news, the work you do, the education your kids need, the investments your employer has to make, and the moral and geopolitical choices our country has to navigate will all be refashioned by Friedman's original analysis.

Friedman begins by taking us into his own way of looking at the world—how he writes a column. After a quick tutorial, he proceeds to write what could only be called a giant column about the twenty-first century. His thesis: to understand the twenty-first century, you need to understand that the planet's three largest forces —**Moore's law (technology), the Market (globalization), and Mother Nature (climate change and biodiversity loss)** —are accelerating all at once. These accelerations are transforming five key realms: the workplace, politics, geopolitics, ethics, and community.

References:

W. J. King and James G. Skakoon (2001). *Unwritten Laws of Engineering: Revised and Updated Edition*, American Society of Mechanical Engineers. ISBN: 978-0791801628

Don Norman (2013), *The Design of Everyday Things: Revised and Expanded Edition*. Basic Books. ISBN: 978-0465050659.

David Beer and David McMurrey (2009). *A Guide to Writing as an Engineer*, 3rd Edition. John Wiley and Sons. ISBN: 978-0470417010



Other papers as handouts, and the links of public videos on relevant topics to start class discussions (such as stereotypes of engineers, gender differences, and cultural influences), will be provided on Blackboard. Some links that would be used when relevant topics were covered in the weekly plan are below:

“The Impact of Globalization on Cross-Cultural Communication” by Lowell C. Matthews and Bharat Thakkar, 2012:

<https://cdn.intechopen.com/pdfs-wm/38267.pdf>

“Team Building and Development in a Matrix Environment” by Karen Davey-Winter:

<https://www.pmiwdc.org/print/article/karen-davey-winter/team-building-and-development-matrix-environment>

“The Role of Leadership and Team-building in Project Management” by Muhammed Adeel, 2015:

<https://www.linkedin.com/pulse/role-leadership-team-building-project-management-muhammed>

“5 Supply Chain Lessons We Can Learn From The Summer Games In Rio” by Christina O'Handley, 2016:

<http://blog.thomasnet.com/5-supply-chain-lessons-we-can-learn-from-the-olympic-summer-games-in-rio>

“Samsung finally explained what caused the Galaxy Note 7 explosions” Jan 23, 2017:

<https://qz.com/892221/samsung-ssnlf-finally-explained-what-caused-the-galaxy-note-7-explosions/>

“Mercedes And BMW Look At Diesel Engines In Wake Of VW "Dieselgate"” Apr 22, 2016:

<https://www.forbes.com/sites/davidkiley5/2016/04/22/mercedes-and-bmw-look-at-diesel-engines-in-wake-of-vw-dieselgate/#29ea0ba6db37>

Instructional Approach: Course material will be introduced during lectures. Reading assignments and exercise problems will be assigned to reinforce material covered in class. Quizzes are given to ensure that students are maintaining pace with the assigned reading. Time will be allocated during lectures for exercise review. All course materials (syllabus, exercises, and handout) will be posted to Blackboard. In addition to lectures, exercises and quizzes, students will conduct group meetings and create project descriptions and designs.

Classroom Policies: The following policies will be in effect during class meetings:

- Cell phones must be turned off during class time and tests.
- Drinks, food and tobacco are not permitted in classrooms.

Course Format: During summer term, this course is a travel course with an online component (in support of [2020 Initiative 1.3.3](#)). The course description and learning objectives are the same for both the on-campus course and the travel course, but learning materials, assignments, and assessment devices are tailored to each specific format. This syllabus provides samples on both face-to-face course delivery and travel course delivery.

Physical fitness requirement: There will be considerable walking required during the trip, often at a brisk pace (e.g., through airports & train stations, from appointment to appointment, etc.). It is reasonable to expect a few miles of total walking per day, though when spread out over the day is not unusual for most college students. Students will also be expected to take staircases in several venues, barring a physical impediment that would require alternative plans. You also must be able to move your luggage on your own without any carts or other aids. This includes bringing the luggage up/down stairs, loading it on/off vehicles or trains, and navigating city streets with bags. Your instructor can offer some guidance about how to best pack to minimize the amount you need to transport.

Attendance: Students are required to attend all lectures and their own group meetings. In a travel course, the attendance is mandatory and monitored at all times for both course delivery and student safety. A missed quiz cannot be made up without

Evaluation:

informing the instructor in advance. Regardless of whether a student attends class, it is their responsibility to obtain any material from fellow classmates. Each student will be evaluated based on performance in the following areas. Respective weights of each performance area are as noted. If any expected unit of this course or assignment cannot be fulfilled, the grading weight will shift to other activity units and assignments.

- Pre-trip meetings 10%
- Groundwork assignments 10%
- Trip engagement and composure 40%
- Reflection paper 20%
- Post-trip assignments 10%
- Post-trip exam 10%

Grading Scale:

The grading scale below will be used to determine final grades.

Numerical Course Average	Grade Assigned	Quality Points per Semester Hour
98 - 100	A+	4.0
92 – 98	A	4.0
90 – 91	A-	3.67
88 – 89	B+	3.33
82 - 87	B	3.0
80 – 81	B-	2.67
78 – 79	C+	2.33
72 - 77	C	2.0
70 – 71	C-	1.67
68 – 69	D+	1.33
62 – 67	D	1.0
60 - 61	D-	0.67
0 - 59	F	0

Assigned Work:

Timely and full completion of reading assignments and reports is vital to student success in this course. The following policies will be in effect:

- Students are expected to do the suggested exercises after reading assignments, and the quizzes will be in similar format as the exercises.
- Any late reports will receive an automatic 30-point grade reduction.
- Any work which is not submitted prior to the next regular semester test will not be accepted. Work assigned after the last regular semester test will not be accepted after the last regular class meeting of the semester.
- No makeup tests or quizzes will be given unless the instructor is notified prior to the absence and/or corroborating documentation of the reason for the absence is provided.

Reports:

Students will work on project development and design in groups of two or three. Reports will be required on various subjects. Some reports are individual reports that must be submitted by each individual student. Some reports are group reports where one report is required from each group.

Reports must be written according to guidelines provided by the instructor. In order that reports demonstrate your best efforts, students are encouraged and may be required to meet with a writing tutor or a Writing Fellow (if available) at the Writing and Learning Commons before a final draft is turned in. Writing Fellows are trained undergraduate writing tutors who want to help you to improve your writing skills. The instructor may require a verification sheet signed by the Writing Fellow / tutor to confirm the meeting must be attached to the final draft.

Course Schedule in Travel: The table below gives a sample itinerary for Summer 2018 from May 18, 2018 to June 1, 2018. The actual activities will be altered based on destinations, logistics, and as best meets the needs of the class members.

Day	Example Activities	Intended Assessment of Course Objectives On Page 2	Corresponding Assessment of Liberal Studies Outcomes On Page 1
Pre-trip meeting 1 in Feb	Logistics planning. Team-building.	V	6d
Pre-trip meeting 2 in Mar	Fundamental engineering and technology principles.	I	2, 3
Pre-trip meeting 3 in Apr	Cultural orientation, inviting Chinese students/faculty.	II	4
Day 1, 2 in travel	Travel from USA to Beijing, China and check in.	II	4
Day 3 in travel	Tour of Forbidden City, Prince Gong's Palace with Grand Theater Building, and dinner of roast ducks.	VI	3, 4
Day 4 in travel	Visit China Datang on Renewable Energy. Own lecture and group exploration on engineering standards. If time permits, visit Heaven Temple with the Whispering Wall.	III	4, 6d
Day 5 in travel	Visit BaDaLing Great Walls, Great Walls Museum, and watch the 360-degree movie of Great Walls.	IV	3, 4, 6d
Day 6 in travel	Travel to Shanghai in high speed train. Tour the bund, People's Park, NanJing Pedestrian street in Shanghai.	VI	3,4
Day 7 in travel	Visit General Motors in Shanghai. If time permits, visit Gold Dragon Fish Oil experience center.	III	4, 6d
Day 8 in travel	Visit Shanghai Envision on Wind Power. Reflection on engineering ethics and professionalism. Visit Huadong Science and Technology University, to attend a talk and chat with their students.	III	4, 6d
Day 9 in travel	Visit Yu Garden and museums in Shanghai and Suzhou. Community engagement. If time	IV	3, 4, 6d

	permits, watch a show.		
Day 10 in travel	Take high speed train to Suzhou. Visit local community. Own lecture on contemporary engineering trends.	II	4
Day 11 in travel	Breakfast buffet at Wu's Family Restaurant. Tour The Humble Administrator's Garden and Suzhou Museum designed by Leoh Ming Pei. Relax at Suzhou Park, Central Park, and/or Lakeside Park. Dinner of Su-style dishes.	VI	3,4
Day 12 in travel	Travel by high speed train to Chengdu during the day time. Group activities on the train.	VI	3, 4
Day 13 in travel	Visit UESTC (exoskeleton robotics lab and/or intelligent vehicle lab) and their students in Chengdu. Own lecture on project development cycles. Dinner at Chunxi Road.	V	6d
Day 14 in travel	Visit Giant Panda Reservation Center and SanXingDui Museum. Own lecture on reservation and product design.	IV	3, 4, 6d
Day 15 in travel	Depart Chengdu for USA.	V	6d
Reflection report	Collecting materials and drafting the report during the trip, revising it after the trip.	III, VI	3, 4, 6d
Post-trip assignments	Case studies based on the contents covered before and during the trips.	III	4, 6d
Post-trip exam	A comprehensive test to integrate course contents.	I, II, III, IV, VI	2, 3, 4, 6d

Accommodations for Students with Disabilities: Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities and/or medical conditions. Students who require reasonable accommodations must identify themselves as having a disability and/or medical condition and provide current diagnostic documentation to the Office of Disability Services. All information is confidential. Please contact the Office of Disability Services at (828) 227-3886 or come by Suite 135 Killian Annex for an appointment.

Writing and Learning Commons: The [Writing and Learning Commons](#) (WaLC), located in **BELK 207**, provides free [course tutoring](#), [writing tutoring](#), [academic skills consultations](#), [international student consultations](#), graduate and professional [exam preparation](#) resources, and online writing and learning [resources](#) for all students. All tutoring sessions take place in the WaLC or in designated classrooms on campus. To schedule tutoring appointments, visit the WaLC homepage (<http://walc.wcu.edu>) or call 828-227-2274.

Student Support Services: Student Support Services provides support to students who are either first-generation, low-income or those who have disclosed a disability with: academic advising, mentoring, one-on-one tutorial support, and workshops focused on career, financial aid and graduate school preparation. You may

contact SSS at (828) 227-7127 or email sssprogram@wcu.edu for more information. SSS is located in the Killian Annex, room 138.

Honor Code:

Students are expected to comply with the spirit and intent of the Code of Student Conduct: <http://www.wcu.edu/student-life/division-of-student-affairs/departments/student-community-ethics/code-of-student-conduct.asp>. Evidence of academic dishonesty will result in a grade of F (numerically "0") for that assignment on the first infraction. A second infraction will result in a grade of F or for the course. See detailed academic integrity policy and reporting process attached at the end of this syllabus.

Academic Integrity Policy and Reporting Process:

This policy addresses academic integrity violations of undergraduate and graduate students. Graduate students should read inside the parenthesis below to identify the appropriate entities in charge of that step of the process.

Students, faculty, staff, and administrators of Western Carolina University (WCU) strive to achieve the highest standards of scholarship and integrity. Any violation of the Academic Integrity Policy is a serious offense because it threatens the quality of scholarship and undermines the integrity of the community. While academic in scope, any violation of this policy is by nature, a violation of the Code of Student Conduct and will follow the same conduct process (see Article VII.B.1.a.). If the charge occurs close to the end of an academic semester or term or in the event of the reasonable need of either party for additional time to gather information timelines may be extended at the discretion of the Department of Student Community Ethics (DSCE).

I. General:

This policy addresses academic integrity violations of undergraduate and graduate students.

Students, faculty, staff, and administrators of Western Carolina University (WCU) strive to achieve the highest standards of scholarship and integrity. Any violation of this policy is a serious offense because it threatens the quality of scholarship and undermines the integrity of the community.

Instructors have the right to determine the appropriate academic sanctions for violations of the Academic Integrity Policy within their courses, up to an including a final grade of "F" in the course in which the violation occurs.

II. Definitions:

1. Cheating – Using, or attempting to use, unauthorized materials, information, or study aids in any academic exercise.
2. Fabrication – Creating and/or falsifying information or citation in any academic exercise.
3. Plagiarism – Representing the words or ideas of someone else as one's own in any academic exercise.
4. Facilitation – Helping or attempting to help someone to commit a violation of the Academic Integrity Policy in any academic exercise (e.g. allowing another person to copy information during an examination).

III. Undergraduate and Graduate Academic Integrity Process:

1. Within five (5) business days of the instructor's knowledge of the alleged violation of the Academic Integrity Policy, s/he will inform his/her department head (or

associate Dean of the graduate school when applicable) in writing of the allegation and proposed sanction(s).

2. Within ten (10) business days of the instructor's knowledge of the alleged violation of the Academic Integrity Policy, the instructor will inform the student of the allegation, including the proposed sanction(s), in writing. In the written notification, the instructor will inform the student of his/her right to request a meeting with the instructor. During the meeting, the instructor shall complete the Academic Integrity Violation Faculty Resolution Form. If the student does not request a meeting with the instructor within five (5) business days of receipt of the written allegation(s), the student shall be deemed to have mutually resolved the matter and shall be bound to the sanction(s) outlined by the instructor in the written allegation. If the student does not request a meeting, the alleged violation of the Academic Integrity Policy shall not be subject to further review and/or appeal.
3. Within five (5) business days of meeting with the instructor, the student shall either appeal the decision to the department head or mutually resolve the matter by accepting the allegation and proposed sanction(s). No action by the student within five (5) business days of the meeting with the instructor shall constitute a mutual resolution and waiver of the student's rights to appeal pursuant to the Academic Integrity Policy. If the student does not respond within five (5) business days of meeting with the instructor, the alleged violation of the Academic Integrity Policy shall not be subject to further review and/or appeal.
4. Within five (5) business days of receiving a student's appeal, the department head must schedule a meeting with the student. The instructor may be present during the meeting. During the meeting, the department head shall complete the Academic Integrity Violation Department Head Resolution Form. Only information submitted during the meeting with the student, or in the meeting between the instructor and the student, may be considered by the department head. The evidentiary standard for making a decision shall be preponderance of the evidence. The department head may agree or disagree with the allegation(s) of the instructor. The department head may also approve, overturn, or modify the sanction(s) proposed by the instructor. If the student does not attend the scheduled meeting with the department head, the matter will be heard in absentia and shall not be subject to further review and/or appeal.
5. Within five (5) business days of meeting with the department head, the student shall either appeal the decision to an Academic Integrity Board or mutually resolve the matter by accepting the allegation and proposed sanction(s). The student must submit an appeal to the academic Dean listed on the Academic Integrity Violation Department Head Resolution Form. No action by the student within five (5) business days of the meeting with the department head shall constitute a mutual resolution and waiver of the student's rights to appeal pursuant to the Academic Integrity Policy. If the student does not respond within five (5) business days of meeting with the department head, the alleged violation of the Academic Integrity Policy shall not be subject to further review and/or appeal.
6. Within seven (7) business days of receiving a student's appeal, the appropriate academic Dean must schedule an Academic Integrity Board hearing with the student. The Academic Integrity Board shall consist of a minimum of two (2) currently enrolled students and/or faculty members (with a minimum of one faculty

member). A faculty member will serve as chair of the board. The instructor may be present during the hearing. Only information submitted during the hearing, or in the meetings between the instructor/department head and the student, may be considered by the hearing board. The evidentiary standard for making a decision shall be preponderance of the evidence. The hearing board may agree or disagree with the allegation(s) of the instructor. The hearing board may also approve, overturn, or modify the sanction(s) proposed by the instructor and/or department head. If the student does not attend the scheduled hearing, the matter will be heard in absentia and shall not be subject to further review and/or appeal. Within ten (10) business days of the hearing, the appropriate academic Dean shall review pertinent records and send the student written notification of the decision of the Academic Integrity Board.

7. Within five (5) business days of receiving written notification of the decision of the Academic Integrity Board the student may accept the findings and sanctions of the board or submit an appeal to the designated academic Dean. No action by the student within five (5) business days of the meeting with the department head shall constitute a mutual resolution and waiver of the student's rights to appeal pursuant to the Academic Integrity Policy. If the student does not respond within five (5) business days of meeting with the Academic Integrity Board, the alleged violation of the Academic Integrity Policy shall not be subject to further review and/or appeal.
8. If the student elects to file an appeal of the decision of the Academic Integrity Board, she must submit a written appeal within five (5) business days of receiving written notification of the decision of the Academic Integrity Board to the designated academic Dean. An appeal to an academic Dean must be limited to the following grounds; 1) a violation or due process or 2) a material deviation from Substantive and Procedural Standards by the UNC Board of Governors (as set forth in the UNC Manual 700.4.1).
9. If an appeal is heard by an academic Dean, s/he shall review pertinent records within ten (10) business days of receiving a valid appeal. The academic Dean may agree or disagree with the allegation(s) of the instructor. The academic Dean may also approve, overturn, or modify the sanction(s) proposed by the instructor, department head, and or Academic Integrity Board. Within five (5) days of making a decision, the academic Dean shall provide the student with a written decision. The decision of the academic Dean shall be final.
10. The student must remain enrolled in the course related to the case, and may not be permitted to withdraw from the course related to the case, until all hearing timelines, notifications, and/or appeals have been completed.
11. Upon resolution of each level of the case (no matter the outcome), the instructor, department head, and academic Dean must provide the Department of Student Community Ethics with all materials and documents related to the case (i.e. course syllabus, materials in violation of the Academic Integrity Policy, Instructor Resolution Form, Department Head Resolution Form, Academic Integrity Board decision letter, academic Dean decision letter, etc...). The Department of Student Community Ethics shall serve as the repository for all records associated with allegations and violations associated with the Academic Integrity Policy.

IV. Academic Integrity Board:

The Academic Integrity Board shall consist of a minimum of two (2) currently enrolled

students and/or faculty members (with a minimum of one faculty member). A faculty member will serve as chair of the board. Students and faculty members serving on boards for each college will be selected by each college Dean. The Department of Student Community Ethics will train all board members prior to their service on a hearing board. Each academic Dean will convene hearing boards as necessary, and will determine a faculty member to serve as chair prior to a hearing.

V. Sanctions:

The instructor, department head, Academic Integrity Board, and/or academic Dean may impose academic sanctions permitted by the institution (not to exceed receiving a grade of "F" for the course). The instructor, department head, Academic Integrity Board, and/or academic Dean may not permanently remove the student from the course or suspend/expel the student from a program or the University. Student behavior of the magnitude to warrant consideration for permanent removal from the course or suspension/expulsion from a program or the University must be referred to the Department of Student Community Ethics.

VI. Habitual Violations of the Academic Integrity Policy:

Upon receipt of materials associated with violations of the Academic Integrity Policy, the Department of Student Community Ethics will determine if a student has previous violations of University policies. Students with a prior record of violations, or who commits a gross and/or egregious violation of the Academic Integrity Policy, will be referred to the Department of Student Community Ethics for consideration of being subject to hearing proceedings as a habitual violator. Students with three or more violations of the Academic Integrity Policy will automatically be subject to hearing proceedings as a habitual violator. Students in this category are subject to course-related sanctions imposed by the instructor, department head, Academic Integrity Board, and/or academic Dean and University-level sanctions imposed by the Department of Student Community Ethics for habitual violations of University policies.

Additional information is available on the Student Success website under Student Community Ethics.