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EGS 1041

Technology, Humans and Society

Spring 2016, Section U01, RXA

Monday 2:00 PM - 4:45 PM; EC 1104

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Office Hours: - Mon & Wed: 10:00 AM- 12:00PM, other times by appointment (305-348-3556)

Teaching Assistant: Ehsan Izadpanahi --Email:

Office: EC 2627

Office Hours: Mon: 2:00 -5:00 pm

Text: Taking sides: Clashing Views in Science, Technology and Society, Thomas Easton, McGraw Hill, 9th ISBN:978-0-07-813940-6

Reference Material: As assigned or posted

ABET

Objective:

- i. The ability to communicate effectively and improve communication skills
- ii. Learn to work in teams
- iii. Learn the impact of technology on society and the economy, environment, and human society.
- iv. Develop a sense of professional and social responsibility through a sense of moral, social and ethical evaluations related to the impact of technology
- v. Learn to apply critical thinking to evaluating emerging technologies
- vi. Review technological foundations, their impact on applications and impact on existing and future technology
- vii. Understanding the existing side effects and impact on economy, ethics, environment, and human society caused by the technology.

Outcomes:

- (C) Understanding of global professional and ethical responsibility
- (D) Ability to function in multi-discipline teams
- (E) Ability to identify, formulate, and solve engineering/science problems
- (F) Understanding of professional and ethical responsibility. (G) Ability to communicate effectively.
- (H) Broad education necessary to understand the impact of engineering and technology solutions in a global and societal context.
- (I) Recognition of the need for, and the ability to engage in, lifelong learning
- (J) Knowledge of contemporary issues
- (K) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

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GLOBAL LEARNING – Global Learning *Graduation Honors*

FIU's Excellence in Global Learning Graduation Medallion is awarded to students who complete at least four global learning courses, participate in a variety of global co-curricular activities, and complete a capstone consisting of one of the following: a substantial original research project and presentation on a global topic; extensive foreign language study; long-term study abroad; or, a globally-focused internship. The Peace Corps Prep certification is conferred upon students who complete at least four global learning courses, extensive language study, and a global problem-solving project. For more information, visit goglobal.fiu.edu.

This course has been designated as a Global Learning course at FIU. We will use these guidelines to integrate global learning into the course this summer.

Objective: The course examines technology humans develop and their impact on cultures, politics and the quality of life. The foundation for envisioning the use of technology for a sustainable future is developed through a global learning approach. Students will be able to demonstrate knowledge of local, global, international and intercultural issues related to technology, conduct multi-perspective analysis of problems and engage in problem solving relative to the role of technology within this local to global context.

Outcomes: (A) Global Awareness: Students will be able to demonstrate knowledge of the diverse modern technologies and associated ethical, legal, and social issues within and among communities across the globe.

(B) Global Perspective: Students will be able to develop a multi-perspective analysis of various modern technologies in terms of their impact on human culture, history, politics, economics, and human life

(C) Global Engagement: Students will demonstrate their understanding and willingness to address issues and problems associated with modern technology development within global and international frameworks and limitations.

Summary: The interactions amongst technology, human culture, history, politics, economics, and quality of human life are addressed and discussed. Emphasis is placed on the interdisciplinary and intercultural impacts of technologies to human society and their global challenges. Modern technologies to be discussed in this course include (1) microelectronics, N/MEMS and nanotechnology technology, (2) military applications of technology, (3) medical devices (4)energy and environment, (5) technology in sports and (6) transportation. A lecture for each topic will be provided, as well as discussions on presentation skills, team dynamics, intellectual property, and library usage for peer reviewed information. Further investigation of these topics through team-based discussion, presentation, debate, online research, and report will be performed.

Exam: There will be two multiple choice/True false exams during the semester, covering the materials presented and the presentations from the group presentations, the technical presentation and a debate.

Presentations: Following each topic lectured, a group project pertaining to the topic discussed will be assigned and orally presented, with the project title selected by each individual student group through

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group study, discussion, and research. Each group is formed by no more than 4 (four) students. There will be group presentations (20 minutes with 5 minute discussion) and a group debate on a topic of current interest. Power Point Presentation must be submitted by Monday (or Weds, as appropriate) @ 9:00 AM the day before the presentation and the presentation will be downloaded from a flash drive on the course computer. Missing the deadline will result in no presentation and a zero for that portion of the grade. Each member of the team must be part of the presentation. The teams are set by Dr. Munroe and it is imperative that you meet your team, choose a group leader prior to your presentation, and actively participate in this part of the course.

Any member of the group that misses the presentation or does not participate with the group will also receive a zero. The presentations will be graded by the instructor and Graduate Teaching Assistants and grading of the class thru the use of an iClicker. The presentation files will be posted on the course website as reference for all students. Each member in a group has to orally present at least two times during the semester.

Technical Report: Additionally, each member will chose and prepare a 200 word essay on the current status of the group topic, and evaluate the impact of that topic from a global perspective. The group can take the same topic and compare the impact on the economic growth of major growth countries (such as China, Brazil or India) and developing countries (in Africa, South America) and the impact of the topic on the ethical, legal and social implications in these countries, the impact on their culture and development and the problems these developments might pose to these individual countries. However, the papers are to be done individually and submitted thru Turnitin.

Grade: Project Presentation 1 (15%), Project Presentation 2 (15%) and Term Paper (10%), Exam I: 15%; Exam II: 20%; Exam III 20%; attendance and participation (iClicker) 5%.

Note: (1) Policies: No Cheating, Chatting, Computer, or Cell Phones. Plagiarism will result in failure of this class.

(2) Deadline to drop a course with a DR grade: 19/03/2018

(3) There will be **NO make-up exams**, except for extraordinary circumstances (e.g., documented emergency, sickness or accident). Prior excuse and notification required.

Schedule

04- Jan	Project Management, presentation skills, team building, library
15- Jan	Martin Luther King Day (university Closed)
22- Jan	Microelectronics, Medical Devices + Intellectual Property
29- Jan	Sports
05- Feb	Presentations, Medical Devices (groups 1-5)
12- Feb	Presentations-Sports (groups 8-16)
19- Feb	Exam 1 (on first 3 topics)
26- Feb	Communication
05- March	Transportation
12- March	Spring Break

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- 19- Mar Presentation on Communication (groups 1-5)
- 26- Mar Presentation on Transportation (groups 6-10)
- 02- April Nanotechnology AMERI visit
- 09- April Exam -2 (on second 3 topics); Co-Curricular Activity – A tour of the Advanced Material Engineering Research Institute Facility.*
- 16- April Energy & Environment, Global Warming/Greenhouse Gas Accounting
- Week of Apr 23: Final exam week (Exam 3 on last 2-3 topics)

*AMERI houses a full suite of analytical tools including 4 electron microscopes, thermal processing and analysis tool, sample preparation and metallography equipment, material property analysis tools. Students from all disciplines will be introduced to the concept of nanotechnology by touring the facility including clean room where various devices are nano-fabricated.

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