TEED 21003 Technology & Society

University of Arkansas College of Education and Health Professions
Department of Curriculum and Instruction

Program Affiliation: Career and Technical Education: Technology and Engineering Education
Course Number and Title: TEED 21003: Technology & Society
Prerequisites: None
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Required Text:
International Technology and Engineering Educators Association. (2020). *Standards for technological and engineering literacy: The role of technology and engineering education in STEM*. Reston, VA: Author.

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Catalog Description: An examination of the complex relationships between society, values, and technological development in developed and under-developed nations.

Relationship to Knowledge Base
This foundational course supports the "Specialty Studies" component of the Scholar-Practitioner model by providing the technology teacher education candidate with knowledge and tools needed to explore the complex relationships between humans, knowledge and skills, and technological development or proliferation. Few elements in our contemporary society are as pervasive as technology. Technology has often been considered an engine of social change. In this course, students will examine the interface between technology and society. The ability to foresee the social, personal, economic, and environmental consequences of technology development and use will be addressed.

Goals and Objectives
This course is designed to provide the candidate with a foundational understanding of the complex relationships between technology, societies, politics, economics, and values.

All candidates pursuing degrees in the College of Education and Health Professions are expected to apply the principles of the conceptual framework as *Scholar Practitioners.* The scholar practitioner reflects a professional who is knowledgeable about subject matter and pedagogy; skillful in teaching and managing classrooms and schools; caring about students, families, school staff and the community; and constantly inquiring to better the profession and increase the success of students, schools and the community. The scholar practitioner is **knowledgeable, skillful, caring and inquiring** and is defined by the following tenets:

1. One who accesses, uses, or generates knowledge
2. One who plans, implements, and models best practices
3. One who understands, respects, and values diversity
4. One who is a developing professional and a lifelong learner
5. One who communicates, cooperates, and collaborates with others
6. One who makes decisions based upon ethical standards and professional criteria
7. One who is knowledgeable about teachers and teaching, learners and learning, and schools and schooling

Technology: As with all teacher preparation coursework, candidates are expected to demonstrate technological competence in this course. This technological competence will be demonstrated through the use of the appropriate technological hardware and software as well as other web-based applications. Scholar-practitioners will utilize technology that enhances the instructional process during the completion on this course.

Objectives

Upon the completion of this course, students will be able to:

1. Describe the social, cultural, political, economic, geographic, and psychological contexts that impact living in a technological world;
2. Explain the socio-cultural elements that determine the quality of life in technocratic societies;
3. Analyze the role of technology in the development, success, and dilemmas of rural and urban societies in this nation and others;
4. Describe the nature of historical and current social resistance to technological change;
5. Critique the evolutionary process of technology and its impact on society, culture, politics, and the media;
6. Explain the socio-psychological dimensions of work and the role of technology in causing major changes in the nature of work;
7. Explain the complex dynamics that produce and shape social outcomes of technology;
8. Demonstrate the use of the "sociological imagination" as the organizing device to identify patterns of social organization, social structure, and social institutions that define living in a technological world; and
9. Demonstrate the ability to complete an "appropriate technological" problem solving scenario that attempts to solve a social problem in an under-developed region of the United States or another nation.

Content Outline
Technological Interfaces

    a. Rural America

        1. Technology: A natural process
        2. Resistance to change
        3. Creativity and innovation

    b. Rural America in transition: social and cultural change issues

        1. Diminishing population and increasing farm size
        2. Economic diversity: rural poor to successful farmers
        3. Rural mentality: collectivism to individualism
        4. The decline of the family farm
        5. Power and control: Independence to increasing dependence
        6. Shifting gender stereotypes/roles?
        7. Environmental issues, such as soil preservation and ground water pollution
        8. Global needs, domestic price stability, and politics (exports, imports, tariffs, and subsidies, etc.)
        9. The social consequences of the demise of the rural community
        10. The concept of progress and agriculture in other cultures

    c. Urban and suburban cultures

        1. The cause and effect of technology and society
        2. Historical development: the city and the fabric of society
        3. The importance of resources
        4. Transportation and communication
        5. Diversity of culture; the development of the arts
        6. Early city design

    d. Technologies crucial to the development of the modern city

        1. Transportation
        2. Communication
        3. Infrastructure and utilities
        4. Systems and the occasion for normal accidents
        5. Skyscrapers
            a. Early barriers to height, solutions
            b. Competition for the sky: monuments to the male ego?

    e. Urban issues and trends: developing countries and America

        1. Power and control
        2. Socialization and isolation in the city:
        3. Poverty and distribution of resources
        4. Social stratification

5. Housing
6. Crime
7. Transportation
8. Environmental issues unique to the urban environment
9. Strategies for modifying the urban environment; revitalizing the city core
f. The media and society
1. Historical perspective: the printing press: economic, social, political, religious, psychological, and cultural consequences; precursor of mass communication
2. 20th century technologies: technology as mediator
a. Television
i. Controversial issues: the good, the bad, and the ugly: stimulating violence; accommodating a passive lifestyle
ii. Shaping world views
iii. Shaping personal values, beliefs, and self-image
iv. Influencing the political process
b. Internet, the Web, and virtual reality
i. Communication
ii. Does information equal knowledge?
iii. Is the Internet the equalizer in society?
iv. "A chip in every product;" will it change society?
3. Environmental issues: noise and information overload
4. The concept of progress
5. Power and control: who controls the media?
g. Social/technological transformations
1. Agriculture to manufacturing to service sector
2. Technology - a major force of change
3. Increased use of automation
4. Globalization of business
a. The technologies
b. Effect on under-developed and developing countries
c. The major players
d. The green revolution
5. The questions of power and control
h. Technology and the concept of progress
1. Solving problems with technology
a. Technological problem solving
b. The design process
1. problem identification
2. problem clarification
3. ideation
4. Drawing, sketching, and designing solutions
5. Solution implementation
6. Testing and evaluation
7. Communicating results

Evaluation: Learning assessments (design challenges, curriculum development, assignments, quizzes, etc.) are designed to prepare the student to deliver course related material in the elementary classroom. These assessments will also serve as continuing preparation to teach integrated STEM education as well as serving as a STEM advocate or resource person in the elementary school.

Grading Scale: A=100-93; B=92-85; C=84-78; D=77-70; F-below 69.

Grades for participating students will be calculated based on completion of the following assignments and activities:

1. **Daily and weekly assignments (200 points)**
   Candidates will participate in ongoing daily and in-class design and engineering activities, assignments, readings, online file management, and discussions.
2. **Curriculum Development/Presentation and Design Challenges (800 points)**
   Each candidate will develop and present STEM lessons and/or design activities related to integrated STEM education throughout the course. Additionally, candidates will work in engineering design teams to use tools, techniques, and materials to design within established constraints. Candidates will rotate from design team to design team as they work to solve technical problems/challenges.
   1. Catapult/Tools/Materials/Processes/Measurement
   2. Paper Engineering/MakeDo/CorelDRAW/C02 Laser Project
   3. 3D Printing/TinkerCAD/Cura
   4. Frugal Teacher STEAM Design Challenge
   5. Engineering a Play Design Challenge
   6. MagLev Design Challenge
   7. MakeyMakey Design Challenge
   8. Amateur Radio FCC Technician License Test (Element 2 Test)
   9. Industry Tour Field Trip Project
3. **STEM Events (100 points)**
   Each candidate will participate in local TSA competitions, STEM Night events, and Maker experiences in the community.
4. **Final Project (200 points)**

Academic Honesty: As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail. Each University of Arkansas student/candidate is required to be familiar with and abide by the University's 'Academic Integrity Policy' which may be found at http://provost.uark.edu/ Candidates with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

Specific permissions will be provided to students regarding the use of generative artificial intelligence tools on certain graded activities in this course. In these instances, I will communicate explicit permission as well as expectations and any pertinent limitations for use and attribution. Without this permission, the use of generative artificial intelligence tools in any capacity while completing academic work submitted for credit, independently or collaboratively, will be considered academic dishonesty and reported to the Office of Academic Initiatives and Integrity.

All students are to complete their own work during the semester. Although students are allowed to share ideas and learn from one another throughout the semester, students are not allowed to copy another person's work. All assignments must be original and completed individually. All citations must be documented using the 6th edition of the APA manual (http://www.apastyle.org/, http://psychology.vanguard.edu/faculty/douglas-degelman/apa-style/)

Attendance Policy: This course is reserved for candidates preparing to become professional teachers. Subsequently, the ethics and responsibilities of professional teachers will be expected of all participants. Candidates must attend all classes to receive the maximum benefit and to avoid leaving their professional responsibilities in the hands of classmates. Candidates will be allowed two "sick" days regardless if excused or unexcused, if needed. This will result in the loss of participation points for the two missed days. Additional absences will result in the lowering of one letter grade per absence in your final grade. Furthermore, two occasions of coming late to class or leaving early will be counted as one absence. Candidates are expected to arrive early, stay focused and attentive during the class, and submit all required materials prior to the due date. Late work will not be accepted for full-credit.

Candidates are required to maintain professional decorum during class. **Cell phones and other electronic devices must be turned off and out of sight during class. Inappropriate and disruptive classroom behavior (including the use of**

cell phones) will result in the loss of points from daily assignment grades. The only exception to this rule is when using a device to conduct research, take photos, record times, use appropriate software, etc. during a STEM design challenge while working in design teams.