

**University of Arkansas, College of Education and Health Professions
REHABILITATION, HUMAN RESOURCES, AND COMMUNICATION DISORDERS**

I. Program Affiliation: Vocational Education, Technology Education concentration

Course Number and Title: TEED 1103: The Nature of Technology

Catalog Description: Foundational study of the close relationship between nature, emerging technologies, and technological literacy throughout history.

Prerequisite: None

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II. 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 an in-depth study of the linkage between technology and nature. The techniques of shaping tools are taken as the chief evidence of the beginning of human culture and this course examines technological development as a powerful force in the development of civilization impacting everything from language, rituals, values, commerce, to society itself.

III. Goal:

This course is designed to provide the candidate with a foundational understanding of the origins, impacts, and social implications of technological development.

IV. Competencies:

Upon successful completion of this course, students will demonstrate knowledge, skills and competencies in the following areas:

1. Demonstrate the ability to distinguish, differentiate and detail the relationships and departures between the natural and technological environments (SP 1) (PW A);
2. Draw comparisons between and within various academic fields and the study of technology (SP 4, 5, 6, 7) (PW A, B);
3. Document the manners through which humans have adapted their environment through technological evolution (SP 1, 4) (PW A);
4. Compare and contrast between indigenous technologies and those transported from society to society (SP 1, 4) (PW A);
5. Describe the history and significant social, cultural, and political events that have shaped the development of technology (SP 1, 4) (PW A);
6. Describe and be conversant with the role that technological development has on societal evolution (SP 1, 4) (PW A, B); and,
7. Demonstrate the ability to utilize knowledge of technology to develop engaging curriculum for all secondary students (SP 2, 3, 6, 7) (PW A, B, C).

V. Content:

- 1. From Nature to Technology (PW: A)**
 - a. Natural inspiration
 - b. Strength through technology
 - c. Food, shelter, defense
 - d. Knowledge, art, control
 - e. Expanding human capacity

- 2. Technology as a motivating force (PW:A)**
 - a. A geo-political force
 - b. Designing solutions for problems
 - c. Introducing solutions/introducing problems
 - d. The interaction between humans and technology
 - e. The dream of continual progress
 1. Faster, stronger, better...
 - f. Technology and rationality
 - g. Famous failures
 - h. Technology changing society
 - i. Society changing technology

- 3. The relationships between technology & other disciplines (PW: A, B, C, D)**
 - a. Mathematics
 - b. Science
 - c. Engineering
 - d. The arts and humanities

- 4. Solving Human Problems (PW: A, B)**
 - a. Human Wants and Needs
 - b. Providing food, shelter, clothing
 - c. Expanding kingdoms
 - d. Military technology
 - e. Influences life patterns/geography
 - f. Influencing migration/change
 - g. Healthcare and life expectancy

- 5. Creating human problems**
 - a. The Consequences of Technological Development
 - b. Overpopulation
 - c. Mass migration
 - d. Environmental and ecological issues
 - e. Creating false security
 - f. Expanding impacts and threats
 - g. Unexpected benefits, costs, and risks
 - h. The side effects

6. Indigenous Technologies (PW: A, B)

- a. Temporary technologies
- b. Geographically available technologies
- c. Impacting values/cultures
- d. Third World technology
- e. Technology of the future

7. Teaching technology and nature (PW: A, B, C, D)

- a. Curriculum development
- b. Activity development
- c. Student assessment

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

1. **(3) Anthropological Assignments (PW: A, B)**: Students will be required to submit three anthropological laboratory activities throughout the semester. These assignments will be developed in such a way as to illustrate the close relationship between early technologies and their natural inspirations. These laboratory activities will be submitted in a curricular format suitable for use in the elementary or secondary technology education classroom and should be submitted electronically **(3/100 points each)**.
2. **Technological Assessment Assignment (PW: A, B)**: Students will be required to complete a technological assessment of a given technological artifact. This assessment will be developed in such a way as to illustrate the intended as well as the unintended and unforeseen consequences or impacts of the selected technology on society, culture, the environment and other social or cultural factors. This assessment will include a timeline and will be submitted in a curricular format suitable for use in the elementary or secondary technology education classroom. The completed assessment paper will be presented in a suitable graphic and through a personal presentation **(100 points)**.
3. **Technological Footprint Assignment (PW: A)**: Each student will be required to complete a personal "footprint" assignment. Through this assignment, the student will be required to conduct research to realistically calculate their personal technological footprint on Earth. This footprint will include primary and secondary material usage, energy usage, waste disposal impact, other lifestyle considerations. The completed footprint will be presented in a suitable graphic and personal presentation **(100 points)**.
4. **Daily Assignments (PW: A, B, C, D)**: Students will be required to participate in ongoing daily and in-class design and engineering activities and assignments. Full participation in these activities will result in **300 points**.
5. **Examinations (PW: A, B, C)**: Mid-term Examination **(100 points)**. Final Examination **(100 points)**.

VII. Syllabus Change

The instructor reserves the right to make changes as necessary to this syllabus. If changes are made, advance notification will be given to the class.

VIII. Grading Scale: The following scale will be used to determine the final grade in the course:

<u>Final Percentage</u>	<u>Final Grade</u>
91% - 100%	A
81% - 90%	B
75% - 80%	C
70% - 74%	D
Below 70%	F

IX. Academic Honesty

The application of the University of Arkansas Academic Honesty Policy, as stated in the Student Handbook will be fully adhered to in this course. Grades and degrees earned by dishonest means devalue those earned by all students; therefore, it is important that students are aware of the University of Arkansas Academic Honesty Policy. Academic dishonesty involves acts which may subvert or compromise the integrity of the education process.

X. Accommodations

Students with disabilities requesting reasonable accommodations must first register with the Center for Students with Disabilities. The CSD is located in the Arkansas Union, room 104 and on the web at: <http://www.uark.edu/ua/csd/applications.htm>. The CSD provides documentation to students with disabilities who must then provide this documentation to their course instructors. Students with disabilities should notify their course instructors of their need for reasonable accommodations in a timely manner to ensure sufficient time to arrange reasonable accommodation implementation and effectiveness. A typical time frame for arranging reasonable accommodations for students who are registered with the CSD is approximately one to two weeks.

XI. Classroom Behavior

Appropriate classroom behavior is expected of the instructor and all students. Inappropriate and disruptive classroom behavior (inappropriate language and gestures, class disruptions, disrespect to other students or instructor, and other behavior as determined by the instructor) will not be tolerated and will result in possible removal from the class and /or disciplinary action as per the student handbook.

XII. Inclement Weather

In case of inclement weather, students should phone 575-4758 if they are unsure if the class will meet. In addition, information concerning University closings can be obtained by phoning 575-2000 for announcements. University closing announcements are also made on KUAF Radio, 91.3 as well as local radio and television stations. The University's inclement weather site is

XIII. Course Resources

In addition to the University library, guest speakers, and journal articles distributed by the professor, the following reference materials will be used extensively:

Alcorn, P. (2003). *Social issues in technology: A format for investigation* (4th Ed.). Upper Saddle River, NJ: Prentice Hall (ISBN 0130602574)

Brown, D. (1996). *The case study: A tool to teach the impacts of technology. Selected Readings in Technology Education*. Reston, VA: International Technology Education Association.

Cowen, S. S. (1997). *A social history of American technology*. New York: Oxford University Press

Custer, R.L. (1995). Examining the dimensions of technology. *Journal of Design and Technology Education*, 5, 219-244.

Davis, M. (1998). *Thinking like an engineer*. New York: Oxford University Press.

Evan, W. M. & Manion, M. (2002). *Minding the machines*. Upper Saddle River, NJ: Prentice Hall PTR.

Karwatka, D. (1999). *Technology's Past*. Ann Arbor, MI: Prakken Publications, Inc.

McKenna, A., & Agogino, A. (2001). *Integrating Design, Analysis, and Problem Solving in an Introduction to Engineering Curriculum for High school Students*.
<http://www.asee.org/conferences/98conf/00308.pdf>

National Academy of Engineering. (2002). *Technically speaking: Why all Americans need to know more about technology*. Washington, DC: Author.

Schumacher, E. F. (1973). *Small is beautiful*. New York: Harper & Row.

Susskind, C. (1973). *Understanding Technology*. London: The John Hopkins University Press.

Waetjen, W. B. (1991). *Technology and human behavior*. Reston, VA: Technology Education Advisory Council.

IX. Research Base

Required Texts

Markert, L., & Backer, P. (2003). *Contemporary technology: Innovations, issues, and perspectives* (4th Ed.). Tinley Park, IL: The Goodheart-Willcox Company, Inc. (ISBN 1566379822)

International Technology Education Association. (2000). Standards for technological literacy: Content for the study of technology. Reston, VA: Author.