Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Technological Design and Systems

Course Number: 00749

Course Description and Prerequisites: Technological Design and Systems is a foundation course in technology for all students in the ninth grade. This exciting, hands-on course provides an overview of the systems areas of bio-related technologies, information, and physical technology. Students, working alone or in groups, will build a foundation for technological literacy by developing, producing, testing and assessing solutions to technological problems. Also, students will analyze the impact of technology on society.

Prerequisites: Creating Technology

Final Exam

Suggested Grade Level: 9th

Length of Course: X One Semester _____Two Semesters _____Other

Units of Credit: 1/2 Credit

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) Technology Education CSPG No. 65

Certification verified by WCSD Human Resources Department:
X Yes ____No

Board Approved Textbooks, Software, Materials:
Title:
Publisher:
ISBN #:
Copyright Date:

Date of WCSD Board Approval:

BOARD APPROVAL:

Date Written: 10-6-2006

Date Approved:_____

Implementation Year:___2007-2008_____

Suggested Supplemental Materials:
Pro/E software (available for free if teacher attends training)

Course Standards

PA Academic Standards:

3.1.10 (A,B,E) Unifying Themes
3.2.10 (C,D) Inquiry and Design
3.4.10 (C) Physical Science, Chemistry and Physics
3.6.10 (A,B,C) Technology Education
3.7.10 (A) Technological Devices
3.8.10 (A,B,C) Science, Technology and Human Endeavors

WCSD Academic Standards: None

Industry or Other Standards: None

WCSD EXPECTATIONS

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (I.E.P.) or Gifted Individual Education Plan (G.I.E.P.).

SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

3.1.10 Unifying Themes

x – performance assessed during that semester

	Performance Indicator	1	2	Assessment
A.	Discriminate among the concepts of systems, subsystems, feedback, and control in solving technological problems.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just
B.	Describe concepts of models as a way to predict and understand science and technology.			

E.	Describe patterns of change in nature, physical and human made systems.			process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests

3.2.10 Inquiry and Design

	Performance Indicator	1	2	Assessment
C.	Apply the elements of scientific inquiry to solve problems.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests
D.	Identify and apply the technological design process to solve problems.			

3.4.10 Physical Science, Chemistry and Physics

	Performance Indicator	1	2	Assessment
C.	Distinguish among the principles of force and motion.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests

3.6.10 Technology Education

	Performance Indicator	1	2	Assessment
A.	Apply biotechnologies that relate to propagating, growing, maintaining, adapting, treating, and converting.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just
B.	Apply knowledge of information technologies to encoding, transmitting, receiving, storing, retrieving, and decoding.			

C.	Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural, production, marketing, research, and design to real world problems.			process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests

3.7.10 Technological Devices

	Performance Indicator	1	2	Assessment
A.	Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests

3.8.10 Science, Technology and Human Endeavors

	Performance Indicator	1	2	Assessment
A.	Analyze the relationship between societal demands and scientific and technological enterprises.			Formative Assessments: • Objective quizzes • Written assignments • Lab reports • Web based • Use rubrics to assess process, not just product • Peer evaluations by rubric Summative Assessments: • Performance Assessments • Written tests
B.	Analyze how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.			
C.	Evaluate possibilities consequences and impacts of scientific and technological solutions.			

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

Formative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Portfolio Assessment: ____ Yes X No

District-wide Final Examination Required: X Yes ____ No

Course Challenge Assessment:

Written Test(s)
Performance Assessment(s)

REQUIRED COURSE SEQUENCE AND TIMELINE

Content Sequence	Dates
Units	**18 week (Semester)**
Safety	2 Days
Impacts	3 Days
Systems Model	1 Week
Engineering Principles	7 Days
Problem Solving	5 Days
Communication Technology	2 Weeks 2 Days
Construction Technology	3 Weeks 1 Days
Manufacturing Technology	3 Weeks 1 Days
Transportation Technology	3 Weeks 1 Days
Bio-related Technology	1 Weeks 3 Days

Specific Educational Objectives to be Taught:

Upon completion of this course, students should be able to:

1. Understand the resources and processes of technology.
2. Develop individual talents and creative abilities through problem-solving activities and design applications.
3. Analyze impacts of technology
4. Increase technological literacy and ability to make informed decisions regarding technological issues that affect society.
5. List, select and apply the inputs, processes, and outputs of the technological systems model.
6. Identify, produce, test and analyze systems of transportation.
7. Identify, produce, test and analyze systems of communication.
8. Identify, produce, test and analyze systems of construction.
9. Identify, produce, test and analyze systems of manufacturing.
10. Identify, produce, test and analyze systems of biotechnology.
11. Develop, produce, use and assess technological products and services to meet human needs and wants or to solve technological problems.

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WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? _X_ Yes ____ No
2. Does this course issue a mark/grade for the report card?
   _X_ Yes____ No
3. Does this course issue a Pass/Fail mark? ____ Yes _X_ No
4. Is the course mark/grade part of the GPA calculation?
   _X_ Yes ____ No
5. Is the course eligible for Honor Roll calculation? _X_ Yes ____ No
6. What is the academic weight of the course?
   ____ No weight/Non credit _X_ Standard weight
   ____ Enhanced weight (Describe)_____