Technical Science – Syllabus

Instructor Information
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Office
Building 100
Room 107

Course Information
Course No: 10-806-106
Credits: 2
Beginning Date: 8/23/06
Number of Weeks: 16
Ending Date: 12/24/05

Meeting Times / Location
Monday - 9:30 – 10:30
Wednesday - 12:30 – 1:30
Friday – 9:30 – 10:30
Room 118

Course Description
Technical Science is divided into three units: 1. Scientific Tools and Methods, 2. Introduction to Chemistry, 3. Introduction to Physics. In unit 1, students convert measurements, design tables and graphs, create models, and use the scientific method. In unit 2, students interpret a model of the atom and use the periodic table. They distinguish physical, chemical, and nuclear changes and identify properties of common compounds. They analyze chemical equations and relate technical applications to chemical properties. In unit 3, students determine the effect of force on linear motion, analyze various physical phenomena, and analyze the various forms of energy.

Prerequisites
None

Textbooks, Resources, Supplies
Text: John Pluemer. *Technical Science*. Publisher: John W Pluemer Lulu.com Inc.
Resources: **http://www.swtc.edu:8082/courses/techsci**
Supplies: Scientific calculator

Course Outcomes
Primary Core Ability: Communicate Clearly
General Education Outcome: Apply Scientific Concepts

Competencies
Convert measurements to required accuracy
Create tables and graphs
Create a model
Use the scientific method
Interpret a model of an atom
Use the Periodic Table
Distinguish between physical, nuclear, and chemical changes
Determine chemical properties of basic compounds
Analyze a chemical equation
Relate technical applications to chemical or physical properties
Interpret types of rates
Determine the effect of force on linear motion
Analyze the relationship of physical phenomena
Analyze forms of energy (nuclear, electromagnetic, chemical)
Analyze forms of energy (thermal, mechanical, electrical)

Grading Information

Rationale

Attendance, Attitude, and Participation: Regular attendance will be taken and is mandatory for the successful completion of this course. Attitude and participation will also play a major part in this course. Grades will not be directly assigned for these factors but they may figure into a student's final grade based on the instructor's discretion. See policy regarding makeup work.

Completion of the Worktext, Internet Assignments, and Labs: Students will be expected to complete the assigned reading, questions, and activities presented in the "Technical Science" worktext. The worktext will be checked periodically at the instructor's discretion and point values from 0-10 will be given. Failure to complete the worktext will cause the student to lose these points and will also adversely affect their performance on the quizzes. In addition, assignments will be made that will require the student to answer questions based on a particular web site and email the answers back to the instructor within the allotted time point values from 0-10 will be given. The worktext and Internet assignments will be 10% of the student's grade.

Quizzes : The student will be required to complete 23 quizzes covering material from the three units outlined above. The quizzes range in value from 14 to 50 points. Quizzes may be assigned by the instructor to be completed individually, as take home assignments, or as group projects. Quizzes represent 40% of the student's grade.

Tests: The student will be required to complete a test covering each unit (three tests total). The tests represent 40% of the student's grade.

Report: Students will complete a short report on a topic of their choice in the field of science. The specific requirements will be explained after completion of Unit 2. The project will represent 10% of the students' grade.

Final Grade Computation

The student's final grade is based 40% on quizzes and 40% on tests, 10% on report and 10% on worktext and Internet assignments.

Quizzes - At the end of the semester after the student has dropped one quiz grade, the quiz points earned will be divided by the total quiz points possible for that student. This is the quiz score.

Tests - The test points earned will be divided by the possible test points. This is the test score.

Worktext, Internet Assignments, Labs - The worktext and Internet assignment points earned will be divided by the possible worktext and internet assignment points. This is the assignment score.

Report - The report points earned will be divided by the possible report points. This is the report score.

Final % = (Quiz Score x 40%) + (Test Score x 40%) + (Assign. Score x 10%) + (Report Score x 10%)
The final percentage will translate into a grade based on the scale below.

Grading Scale

A = 92% - 100%
B = 83% - 91%
C = 74% - 82%
D = 65% - 73%
F = Below 65%

Guidelines and Information

Make Up Work and Absentee Policy

It is essential that students attend class regularly. For this reason NO quizzes, assignments, or labs, or, report, or workbook checks can be made-up after an absence. Only tests are eligible for makeup based on the following conditions. If a student knows that they will be unable to attend during a scheduled test, the student can make arrangements to complete the test without penalty before the next class meeting. It is the student's responsibility to make these arrangements prior to the absence. Students will be allowed to drop one quiz grade of their choice at the end of the semester. Neither the report grade nor the worktext/internet assignment grade nor a test grade can be dropped.

ADA Statement

Students with disabilities should contact the Special Services Coordinator to arrange special accommodations or services to participate in this course, please contact…
Alan Propst, Special Services Coordinator,
Building 100 Room 108.
1-800-362-3322 x 2130 or TDD 1-608-822-2072.
apropst@swtc.edu
Refer to the Student Handbook for further details.

Ethics Policy:

When an instructor has evidenced dishonest behavior by a student or students, that student shall be withdrawn from the course for the semester. A letter describing the infraction will be sent to the student and the division dean and filed with student services. The student or students will be required to meet with the division dean, the counselor, and the course instructor.

ASC Statement

If you would like some additional help understanding the course material, you can stop at the Academic Skills Center (building 100 room 107). Instructors are available at all times to answer any questions you may have regarding this course. This service is provided free of charge to all SWTC students. All you have to do is "ASC".

Grade Record

Unit 1 Scientific Tools and Methods

Section	Assignment	Quiz	Test
Making Observations	----------	Quiz 1 =	----------
Measurements	----------	Quiz 2 =	----------
Tables and Graphs	----------	Quiz 3 =	----------
Models	----------	Quiz 4 =	----------
Scientific Method	----------	Quiz 5 =	----------
			Test 1 =

Unit 2 Introduction to Chemistry

Section	Assignment	Quiz	Test
Study of Matter	----------	Quiz 6 =	----------
Multidimensional Properties	----------	Quiz 7 =	----------
Atoms	Atom Web Assign	Quiz 8 =	----------
Elements, Isotopes, and Ions	----------	Quiz 9 =	----------
Periodic Table	Periodic Table Web Assign.	Quiz 10 =	----------
Physical, Nuclear, & Chemical Changes	----------	Quiz 11 =	----------
Chemical Bonds	----------	Quiz 12 =	----------
Making Compounds	----------	Quiz 13 =	----------
Chemical Equations	----------	----------	----------
Chemistry in Your Everyday Life.	Metals Web Assign Nonmetals Web Assign Salts Web Assign Water Web Assign	----------	----------
			Test 2 =

Report

Report / Presentation	Score =

Unit 3 Introduction to Physics

Section	Assignment	Quiz	Test
Rate	----------	Quiz 15 =	----------
Force and Motion	----------	Quiz 16 =	----------
Work, Resistance, and Power	----------	Quiz 17 =	----------
Energy	----------	Quiz 18 =	----------
Nuclear Energy	----------	Quiz 19 =	----------
Electromagnetic Energy	Light Web Assign	Quiz 20 =	----------
Chemical Energy	----------	Quiz 21 =	----------
Thermal Energy	----------	Quiz 22 =	----------
Mechanical Energy	----------	Quiz 23 =	----------
Electrical Energy	----------	Quiz 24 =	----------
			Test 3 =