

Course Expectations for: PRINCIPLES OF ENGINEERING* – 8642

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COURSE DESCRIPTION:

PRINCIPLES OF ENGINEERING* – 8642

Course Scope:

This one-year course is designed for students who have successfully completed Introduction to Engineering Design. Students use mathematics, science, and technology in an engineering problem-solving environment. The course focuses on the social and political consequences of technological change. Instructional practices incorporate integration of diversity awareness including appreciation of all cultures and their important contributions to society. The appropriate use of technology is an integral part of this course. This course fulfills one of the elective credits required for high school graduation.

COURSE GOALS:

1. To apply computer-assisted drafting, 3-D image manipulation, and file management to engineering design.
[NS: CAD 2.0-4.0; CT 1.0-6.0; ELA 1.0, 4.0, 7.0; IT 5.0; MAT A-D; SCI N.12.A.1]
2. To practice the design-process during product or system development, redesign, and continuous quality improvement. [NS: MAT A-D, 1.0-5.0; SCI N.12.A.3, N.12.B.4]
3. To analyze mechanisms, thermodynamics, fluid, electrical, and control systems as they apply to engineering.
[NS: MAT A-D, 1.0-5.0; SCI P.12.A.1, P.12.A.6, P.12.B.1, P.12.C.1, P.12.C.2]
4. To analyze statics and the strength of materials as they apply to engineering.
[NS: MAT A-D; SCI P.12.C.2]
5. To interpret the categories and properties of materials and perform destructive and non-destructive testing for quality assurance. [NS: MAT A-D; SCI P.12.C.2]
6. To debate the legal, ethical, environmental, and societal impacts of engineering designs.
[NS: CAD 6.6; ELA 4.0-8.0; RBC 8.6; SCI N.12.B.1-N.12.B.3]
7. To analyze test data from interpretations of dynamics and kinematics associated with engineering. [NS: CT 4.0; ELA 4.0-8.0; MAT A-D; SCI N.12.A.1, P.12.B.1]
8. To demonstrate skills in the use of tools, machines, equipment, instruments, and computers to produce products and solve engineering problems. [NS: CAD 1.0-6.0; CT 4.0]
9. To develop the academic and employment skills necessary for entry-level positions in the industry.
[NS: ELA 4.0, 7.0, 10.0, 11.0; SCI N.12.A1-N.12.B4; CAD 1.0, 3.0-6.0; MAT 1.0-5.0, A-D]
10. To research career opportunities in engineering. [NS: CAD 6.8; ELA 7.0, 11.0; IT 5.0]

It is recommended that nontraditional careers be encouraged and that gender-neutral teaching materials be utilized. The emphasis on hands-on activities allows for a wide range of ability levels. Equipment, tools, and machinery should be adapted for use by students with physical handicaps and the methods of their use should be adjusted to accommodate these special needs. Additionally, instructors are encouraged to use supplemental textbooks and audiovisuals illustrating special populations.

COURSE REQUIREMENTS AND GRADING PROCEDURES:

GRADING POLICY

The purpose of grades is to provide effective feedback to students, parents, and the school administration about a student's progress towards mastery of the established standards for a particular course or subject. As such, other factors such as attendance, effort and behavior will not be considered when calculating a student's grade. However, **excessive absences** (Seven unexcused absences during a semester) may result in a loss of credit in accordance with CCSD Regulation 5113. Extra credit will **not** be permitted unless the work is specifically designed to provide more evidence of a student's progress towards mastery of the established standards.

Teachers will provide students with unit overviews that outline the performance expectations for that unit. These outlines will be accompanied by rubrics that define the levels of proficiency students are expected to demonstrate. The goal is for students to become more involved in monitoring their level of proficiency and participating in Assessment for Learning in order to improve their performance.

Students will be graded on a 0-100 point scale, with the following grade equivalents:

90-100	=	A	Consistently exceeds standards
80-89	=	B	Consistently meets standards
70-79	=	C	Approaching standards
60-69	=	D	Emergent
0-59	=	F	Does not meet standards/ Evidence not provided

In order to demonstrate sufficient evidence of proficiency, a student will be required to make arrangements with the teacher to make-up any assessments missed due to an absence. Failure to complete required assessments may result in a lower grade or a failing grade due to a lack of evidence.

Throughout the semester, students will be expected to complete formative and summative assessments. The Southwest Career and Technical Academy will be incorporating Project-Based Learning across the curriculum. The project-driven assessments will be implemented and assessed according to a standard rubric for all students, based on our beliefs in the attributes of Academic Knowledge, Character, Skills, Work Ethic, and Preparation. Further assessments include, but are not limited to,

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homework, class activities, participation, lab activities, class projects, quizzes, and exams. For this subject, assessments will be weighted as follows:

Project-Based Learning and the Six Tenets

The Southwest Career and Technical Academy is dedicated to assessing student learning and achievement through Project-Based Learning (PBL). The Southwest CTA uses six tenets, or beliefs, to assess student performance during each PBL assessment. These tenets will be the basis of grading during each PBL project. The six tenets are as follows:

- Content Knowledge
- Work Ethic
- Use of Resources
- Teamwork and Collaboration
- Professional Presentations
- Writing Skills

These tenets may also be used in the classroom setting at the teacher's discretion.

Content Knowledge=Tests/Quiz, Homework, Project	20%
Written Skills=Tests/Quiz, Homework, Project	20%
Presentation Skills=Project, Hands on Mastery	20%
Use of Resources=Appropriate use of secondary resources, utilization of technology, mastery of tools	10%
Teamwork/Collaboration=Participation (group level)	10%
Work Ethic=Meeting Deadlines, Participation. (individual level)	20%

Projects: Course objectives will be met in the form of both individual and group projects. Projects will utilize the majority of the information from a particular unit and will be due on the assigned date at the end of the unit.

Testing and Quizzes: The teacher will administer tests and quizzes throughout the course to determine the individual student's development as well as the effectiveness of the teaching system being employed.

Class-work: Students will complete the majority of their assignments in class with a few assignments to be worked on partially or completely at home when appropriate. The lab will be open in the morning and afternoon for students in need of additional time to complete make-up work. Available office hours are posted on the class website. Storage of student's computer documents and projects are to be on the student's network account

or on a flash drive. Loss of a document, project, assignment, or crashed disk will not be an excuse for not meeting an assignment deadline. The backing up of all documents will prevent any misfortunes. SAVE OFTEN!!!

Homework: - These assignments will not require the use of any of the software utilized in class. The assignments are given so students can either review concepts covered in class or to prepare students for a future project. Students are expected to turn-in the homework assignment at the beginning of class on the due date.

Binder and Engineer's Notebook: - Notebooks will contain notes from material covered in class, collected resources, inspiration and ideas, and practice techniques. It is important that the notebook is in class every day and is maintained, as it will grow to become a powerful resource. Notebooks will be checked for organization and maintenance throughout each grading period.

Participation: Students will earn weekly participation points (Work Ethic). Points will be lost for any of the following reasons:

1. Unexcused absence
2. Tardy
3. Lack of preparation (no notebook, no supplies, etc.)
4. Misuse of class time
5. Inappropriate behavior (nuisance item usage, sleeping, class disruptions, eating or drinking in class, cheating/plagiarism, insubordination, etc.)

Semester Exams: According to CCSD regulation 5121, "Semester exams shall be comprehensive of the

According to CCSD regulation 5121, "Semester exams shall be comprehensive of the material covered during the semester and may be worth up to, but not exceed, 20% of the student's final semester grade. Final semester grades shall reflect assignments and assessments completed throughout the semester and the final exam grade". Semester grades are not to account for more than 10% of the final grade. Semester grades will be calculated as follows:

Quarter 1 Grade	=	45%
Quarter 2 Grade	=	45%
Semester Exam	=	10%
Semester Grade	=	100%

REQUIRED MATERIALS

- A binder with dividers to keep track of paperwork done daily.
- \$90 class fee to be paid to help provide some of the supplies that will be used during class.
- An engineer's notebook to document project design and progress.
- A flash drive to use for file backup and to take files home. (optional)
- Pens, mechanical pencils, highlighter, eraser etc.

MAKEUP WORK POLICY

The following language is from CCSD Regulation 5113:

Teachers shall provide an opportunity for a student to make up missed work due to any absence, and students shall be held accountable for the work. When a student is absent, however, the educational experiences lost during that absence might be irretrievable because the instruction and interaction in the instructional setting cannot be duplicated through makeup work.

After any absence, a secondary student is required to initiate contact with the teacher(s) to obtain appropriate makeup work **within** three school days immediately following the absence. Once contact has been made with the teacher(s), specific makeup work must be completed and returned to the teacher(s) within a reasonable length of time, to be determined by the teacher and communicated to the student/parent or legal guardian. The makeup work must be returned to the teacher(s) by the specified due date if it is to be acknowledged. Students shall be allowed a minimum of three (3) days to complete makeup work.

LATE WORK POLICY

Late work that is considered practice (homework, classwork, etc.) will be accepted and graded for credit at the teacher's discretion with a reduction of grade of up to 50%.

Missed class/shop work time will need to be made up before or after school. The student will need to make arrangements with the instructor to schedule dates and time for makeup time.

CCSD policy will be followed concerning written assignments and tests.

DISCIPLINE PROCEDURES AND CITIZENSHIP GRADING:

Classroom Discipline Plan

- Everyone is expected to participate positively. Your opinions matter and your comments are expected. Simply wait your turn, or until you are invited, to participate during discussions, group work, question/answer periods or other appropriate times.
- Everyone is to be treated with courtesy and respect.
- Respect your workspace and equipment; please leave it neat and orderly for the next student.
- No food or beverages. The exception is water.
- Refrain from using personal electronic devices during class.
- Please do not interrupt me, or anyone else, when they are speaking and please be quiet during lectures, media presentations, films and documentaries, or discussion unless it is for a question or your turn to speak.
- Restroom passes will be treated in a common sense way. Please do not interrupt the class or me when seeking permission to leave or abuse the privilege.
- Be punctual.
- Make good use of class time. Please be at your seat and ready to work when the bell rings and do not line up at the door at the end of class. I will dismiss you.
- ***It is paramount that the student follows all safety rules while working in the shop area.***

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The following steps in the Southwest Career and Technical Academy Progressive Discipline Plan will be followed when students do not follow established rules and behave inappropriately:

STEP ONE:	Teacher-Student Conference (Warning)
STEP TWO:	Parent Contact by Teacher (Phone or Letter)
STEP THREE:	Counselor Referral
STEP FOUR:	Dean's Referral

Some offenses are serious enough to warrant a referral to the Dean for the initial infraction (e.g.: physical violence, gross insubordination, truancy, etc.)

1. Tardy Policy

Timeliness Is Expected (T.I.E.) program promotes being on time as a basic skill for success that every person needs to possess. Through this program, it is our expectation that SWCTA students arrive on time to every class. Not only are students developing skills for success in high school but for the rest of their lives. Being on time before school may require special attention from the student's parent or guardian.

When a student is tardy during the 2011-2012 school year, the student will bring home a tardy slip. Any tardy during 1st block will result in a deans' detention to be served after school the following day. Detention will be served from 1:30-2:00 in a room designated by the dean's office. In addition to dean's detention, the third tardy in 1st block will also result in a Required Parent Conference, and a sixth tardy will result in one day of suspension. A day of suspension will be given for every tardy thereafter. Tardies received for any other periods of the day will require a parent or guardian to bring the student to school the next day and sign them in at the dean's office. Students who attempt to attend classes before being reinstated will be required to call home and get a parent to come sign them in or get permission to leave campus. Students not signed in will be placed on RPC (Required Parent Conference) pending a parent conference.

It is our goal that all students achieve to the best of their ability. By being on time to each class, students have a better opportunity to be successful. Parents or guardians may contact the Dean's Office at 799-5766 (X4500) in the event that there are questions regarding our Timeliness Is Expected program.

2. **Cell Phone/Nuisance Item Policy**

The Southwest Career and Technical Academy cell phone/nuisance item policy is in accordance with CCSD Regulation 5136 and the specific needs of the Southwest Career and Technical Academy.

FIRST OFFENSE:	Warning/Copy of Policy/Confiscation
SECOND OFFENSE:	RPC-B/Parent Pick-Up/Confiscation
THIRD OFFENSE:	RPC-T/Behavior Contract/Parent PickUp/Confiscation
FOURTH OFFENSE:	1 Day Suspension/Parent Pick-Up/Confiscation
FIFTH OFFENSE:	3 Day Suspension/Parent Pick-Up/ Confiscation
SIXTH OFFENSE:	5 Day Suspension/Parent Pick-Up/Confiscation

3. Citizenship Policy

CATEGORY	Outstanding (4)	Satisfactory (3)	Needs Improvement (2)	Unsatisfactory (1)
Engagement	Consistently involved in class activities; contributes to overall learning process; collaborates with others and/or the teacher.	Engages in class activities, but may have to be encouraged; works with others or groups, but may not initiate collaboration.	Does not engage in class activities; rarely demonstrates initiative and may occasionally disengage from class.	Consistently uninvolved in class activities. Adamant refusal to work.
Preparation	Consistently prepared with materials; work is on time and may go beyond expectations.	Student has materials and submits work in a timely fashion and as expected.	Student may have had multiple instances of being unprepared, late work, or not completed as requested.	Consistently unprepared for class. Does not submit work on time or at all.
Behavior	Consistently respectful of both classmates and adults; Takes responsibility for individual actions; Consistently complies with school and classroom rules.	Respectful to both peers and adults. Occasionally accepts personal responsibility. Mostly complies with school and classroom rules.	Disruptive to others. Argumentative and defensive when disciplined. Disregard for school or class rules.	Consistent disrespect to classmates or adults. Regularly disruptive to learning process and violation of school or class rules. Plagiarism

Student citizenship grades are reported as follows: (This part cannot be changed)

- O** = **Outstanding**
- S** = **Satisfactory citizenship**
- N** = **Needs Improvement**
- U** = **Unsatisfactory citizenship**

CODE OF HONOR

Nevada Department of Education

There is a clear expectation that all students will perform academic tasks with honor and integrity, with the support of parents, staff, faculty, administration, and the community. The learning process requires students to think, process, organize and create their own ideas. Throughout this process, students gain knowledge, self-respect, and ownership in the work that they do. These qualities provide a solid foundation for life skills, impacting people positively throughout their lives. Cheating and plagiarism violate the fundamental learning process and compromise personal integrity and one's honor. Students demonstrate academic honesty and integrity by not cheating, plagiarizing or using information unethically in any way.

What is cheating?

Cheating or academic dishonesty can take many forms, but always involves the improper taking of information from and/or giving of information to another student, individual, or other source. Examples of cheating can include, but are not limited to:

- ➡ Taking or copying answers on an examination or any other assignment from another student or other source
- ➡ Giving answers on an examination or any other assignment to another student
- ➡ Copying assignments that are turned in as original work*
- ➡ Collaborating on exams, assignments, papers, and/or projects without specific teacher permission
- ➡ Allowing others to do the research or writing for an assigned paper
- ➡ Using unauthorized electronic devices
- ➡ Falsifying data or lab results, including changing grades electronically

**This includes submitting the same assignment to two separate teachers without prior permission.*

What is plagiarism?

Plagiarism is a common form of cheating or academic dishonesty in the school setting. It is representing another person's works or ideas as your own without giving credit to the proper source and submitting it for any purpose. Examples of plagiarism can include, but are not limited to:

- ➡ Submitting someone else's work, such as published sources in part or whole, as your own without giving credit to the source

- ➡ Turning in purchased papers or papers from the Internet written by someone else
- ➡ Representing another person's artistic or scholarly works such as musical compositions, computer programs, photographs, drawings, or paintings as your own
- ➡ Helping others plagiarize by giving them your work

All stakeholders have a responsibility in maintaining academic honesty. Educators must provide the tools and teach the concepts that afford students the knowledge to understand the characteristics of cheating and plagiarism. Parents must support their students in making good decisions relative to completing coursework assignments and taking exams. Students must produce work that is theirs alone, recognizing the importance of thinking for themselves and learning independently, when that is the nature of the assignment. Adhering to the Code of Honor for the purposes of academic honesty promotes an essential skill that goes beyond the school environment. Honesty and integrity are useful and valuable traits impacting one's life.

**This includes submitting the same assignment to two separate teachers without prior permission.*

Questions or concerns regarding the consequences associated with a violation of the Code of Honor may be directed towards your child's school administration and/or the school district.

Dear Families,

Please sign and detach this portion along the line above and have your child return it to the teacher listed below, so that you may keep this copy of the course expectations for future reference. Please contact Mr. McElroy at 799-5766, if you have any questions regarding the information included in this document. I look forward to meeting you and becoming a partner in your child's educational experience at Southwest Career and Technical Academy.

Teacher Signature: D. McElroy **Date:** 8-29-2011

I HAVE READ THESE COURSE EXPECTATIONS AND UNDERSTAND THE EXPECTATIONS FOR MY CHILD THIS YEAR.

Parent/Guardian Signature: _____ **Date:** _____

I HAVE READ THESE COURSE EXPECTATIONS AND UNDERSTAND THE EXPECTATIONS FOR ME DURING THIS SCHOOL YEAR.

Student Signature: _____ **Date:** _____

Please indicate your preference, sign and date this form below.

- I give** my child permission to view "PG" rated films.
- I do not give** my child permission to view "PG" rated films with the understanding that an alternative assignment will be given.

Parent/Guardian Signature: _____

Date: _____