



DISL 126 Advanced Fluid Power section name section credit hours Credits **Syllabus**

Course Information

Meeting times and location: section meeting_times section location

Catalog description: Covers fluid power trouble shooting concepts and further study in closed-loop hydraulic systems. Students will learn the steps necessary to safely troubleshoot hydraulic system components for failures. Closed-loop systems will be discussed in greater detail to include commissioning strategies for closed loop pumps and motors. Safety will be strictly enforced. A grade of 'C' or better must be earned to receive credit for this course.

Prerequisites: Take DISL-125

Terms offered: Spring Only

Section-specific Course Description:

Course Level Objectives

Upon successful completion of the course, the student will be able to...

1. Understand the special hazards specific to troubleshooting fluid power systems.
2. Perform analysis of fluid power schematics to identify areas of potential trapped energy.
3. Define failure paths and demonstrate troubleshooting techniques for:
 1. Gear, vane, axial piston, radial piston, and bent axes pumps.
 2. Gear, vane, axial piston, radial piston, and bent axes motors.
 3. Flow control valves
 4. Pressure control valves
 5. Directional control valves
 6. Cylinders
4. Execute the following diagnostic procedures:

1. Pressure control valve MicroLeak test.
2. Check valve MicroLeak test.
3. Cylinder leakage test.
4. Directional control valve leak path test.
5. Circuit Module MicroLeak test.
6. Setup, adjust, and test pressure compensated pump.
5. Properly select diagnostic instruments to safely preform troubleshooting.
6. Preform and interpret the results of hydraulic system tests on pumps to include:
 1. Inlet restriction
 2. In-circuit flow
 3. Direct access flow
 4. Pump case pressure
7. Preform and interpret the results of hydraulic system tests on system components to include:
 1. Pressure Control Valves
 2. Check Valves
 3. Cylinders
 4. Directional Control Valves
8. Preform and interpret the results of hydraulic system tests on motors to include:
 1. Internal drain motor direct access flow test
 2. Internal drain motor in-circuit flow test
 3. Motor case drain pressure test
9. Define a closed-loop system.
10. Understand the advantages and performance characteristics of a closed-loop system.
11. Identify the types and applications of a closed-loop system.
12. Locate typical system components in a closed-loop system.

Required Texts and/or Materials

An Introduction To Closed-Loop Oil Systems

McLaren
Fluid Power Training Institute

Troubleshooting Hydraulic Components Student Workbook

McLaren
Fluid Power Training Institute

Required Technology and Software

- Canvas
- Chrome, Safari, or Firefox

Technical Support

Technical support is available through the San Juan College Help Desk 24/7/365. The help desk can be reached at 505-566-3266 or by creating a ticket at [San Juan College Help Desk](#).

For tickets and password reset: [San Juan College Help Desk](#)

For Canvas support information: [Canvas Support](#)

Accessibility/Privacy Policies for all Technology Tools Used

[Accessibility/Privacy Policies for all Technology Tools Used](#)

Course Requirements

Students will do the following activities:

COVID Safe Practices for Being on Campus

Masks / cloth face coverings must be worn while on campus in accordance with the New Mexico public health order. If you feel that you cannot wear a mask due to health complications, please contact Disabilities Services:

disabilityservices@sanjuancollege.edu or call (505) 566-3271. Hand sanitizer stations are at all building entrances, please “wash in, wash out”--clean your hands when you enter and before you leave. Classrooms and labs have been arranged to allow for social distancing; please respect your classmates and instructors by staying 6 feet away from everyone. You will be expected to disinfect your table or area prior to class and after class, cleaning products will be provided for this purpose. Check with your instructor for specific policies for their course. Please do not congregate in hallways or common areas, instead utilize our beautiful outside spaces and weather to visit with your friends and colleagues from a safe distance.

If you have been in contact with anyone who has tested positive for COVID-19, has symptoms, or is waiting on test results, contact your instructor and DO NOT come to class. If you have tested positive, have symptoms or are waiting on test results, contact your instructor and DO NOT come to class. Your health care provider or the assigned contact tracer will let you know when it is safe for you to be around others.

Student Support

Student Services and Support

The Student Support webpage provides information on counseling, tutoring, technical support, and many other support services available to San Juan College students.

[Student Support](#)

Academic Support

Academic Support webpage provides information on academic advising, the library, Testing Center, and the honors program.

[Academic Support](#)

Participation and Attendance Policy

Attendance:

San Juan College has the responsibility to the community to graduate qualified, dependable students. The State of New Mexico and San Juan County provide funds to assist the college in meeting this responsibility; therefore, it is reasonable to expect prompt, regular attendance on the part of each student. Moreover, excessive absenteeism is never tolerated by an employer and is grounds for dismissal from the job.

Most businesses cannot afford to pay employees if they are not working, so it is good to get in the habit of regular attendance. Therefore, students are expected to attend 100% of the contact time in Diesel courses and be on time for every course meeting. Students total point percentage will be lowered one percentage point for every 1% of total contact time missed. Any student whose attendance drops below 80% of the total contact time or has missed 10% of the total contact time of the course consecutively will automatically receive a X grade (failing) as that student will be considered a no-show/non-attending student.

1. Being absent results in a loss of that day's contact hours towards the total percentage of the course attended.
2. Being late or leaving early will result in a loss at minimum of one-hour contact time towards the total percentage of the course attended.
3. Being late or leaving early by more than 5% of the daily class time but less than 25% daily class time will result in a loss of half the days contact hours towards the total percentage of the course attended.
4. Being late or leaving early by more than 25% the daily class time will result in complete loss of that day's contact hours towards the total percentage of the course attended.

Shop and Classroom Participation:

Participation is an important part of learning and involves taking an active role in your education both in the classroom and out in the shop. Because of this importance there will be 25 participation points available every class day. The points awarded will reflect the student's attendance, interactions with students and instructors, being prepared for class, showing satisfactory work in the shop, and completing job sheets where required. Below is the grading rubric for calculating participation. Remember an absence equals zero participation.

Area Assessed		100%	75%	50%	25%	0%
Attendance 6.25 points/day		Is on time to class and prepared for any classroom or shop activities.	Is on time to class but is not prepared and has borrow materials for the class activities.	Is on time to class but is not prepared and has to leave class to retrieve materials for the class activities.	Is on time for class but is not prepared and makes no effort to correct.	Is late for class or leaves class early.
Safety 6.25 points/day		Has all necessary safety equipment on and always uses shop equipment in a safe manner.	Has all necessary safety equipment but had to be reminded to put them at the beginning of a shop project.	Has all necessary safety equipment but has to be told to use it or is not using shop equipment in a safe manner.	Has all necessary safety equipment but has to be told to use it and is not using shop equipment in a safe manner.	Does not attend class with necessary safety equipment.
Involvement 12.5 points/day	Class	Pays attention in class during lectures and is not distracted. Participates in discussions and interacts to make the classroom a better learning environment for everyone.	Pays attention in class but is not involved in discussions. Adds very little to make the classroom a better learning environment for everyone.	Is mostly paying attention in class but adds nothing to the learning environment. Is not a distraction to the learning of others.	Is not adding to the learning environment. Does not actively participate in class discussions and is starting to become a distraction to other students.	Is not paying any attention and/or constantly using electronics during lectures. Is not an active participant in learning and becomes a distraction or detriment to the

						learning of others.
	Shop	Actively participates in assigned shop activity. Follows directions without having to be retold. Shows gaining mastery of the skills being performed.	Participates in assigned shop activity. Follows directions adequately. Shows improving levels of gaining mastery of skills being performed.	Is a passive member of a group on a shop project but is paying attention to the activities. Needs some help following directions. Is able to show minimal levels of gaining mastery of the skills being performed.	Is a passive member of a group on a shop project. Will not or cannot follow directions given. Shows almost no levels of gaining mastery of the skills being performed.	Has to be constantly redirected to stay on task. Is a passive member of a group on a shop project and/or disappears during class time. Does not show any gaining mastery of skills being performed.

Any students that receive less than 50% participation based on the above rubric will be considered a non-participating student. Students that are considered non-participating by any Diesel Department Policy will also have their total contact time in the course reduced by half of the contact time for each day they are considered non-participating.

Other Classroom Policies and Expectations

Students must read and understand the Diesel Equipment Technology Department Student Handbook and will be held accountable to the information it contains. The Diesel Department Student Handbook is published as the Course Guide in every Diesel Equipment Technology Course.

Grading

The final grade in this course is calculated by the weighted grades in seven categories. They include:

1. Homework

2. Shop and Classroom Participation
3. Test and Quizzes: Includes all chapter tests and various quizzes given during the semester.
4. Portfolio: Included all work done during the course of the semester including workbook assignments and lab sheets.
5. Safety and JSAs: Completely filled out JSA forms handed in at the end of each week for every class and conducting shop activities safely and with industry standard PPE.
6. Final Practical Test: The points earned on a final hands on test.
7. Final Written Test: The points earned in the final exam.

Category	Weight
Homework	15%
Shop and Classroom Participation	15%
Tests and Quizzes	15%
Portfolio	10%
Safety and JSAs	10%
Final Practical Test	20%
Final Written Test	15%

During the course of a normal semester the grading weight will not change. However, if the semester is interrupted for any reason and cannot continue as scheduled (e.g. the Spring 2020 COVID-19 shutdowns), any grading area that cannot be completed due to the extenuating circumstances will be removed and the weights of the remaining categories will be adjusted accordingly. Students will be notified if the need arises.

Please note that in order to receive credit towards a degree you must receive a letter grade of at least C or better. The point scale used in all DIME courses is below.

Percentage	Grade
90% to 100%	A
80% to 89.9%	B
70% to 79.9%	C
60% to 69.9%	D
0% to 59.9%	F

Course percentages will not be rounded while calculating the letter grade.

Key Dates to Remember

College Policies

The following information also applies to your work in this class. If you have special needs for campus emergency situations, please inform me immediately.

1. **Academic Accommodations - American with Disabilities Act (ADA)**

If you believe you need academic accommodations due to physical or learning disabilities, you are encouraged to inform them as soon as possible. The coordinator can work with you in verifying your disabilities and developing accommodation strategies. Please go to [Disability Services Office](#), click the button for “Request for Services” and complete all the steps.

You can also contact the college’s disability coordinator in the Advising/Counseling Center at 566-3271 or disabilityservices@sanjuancollege.edu. More information is available on the website listed above.

2. **The Family Educational Rights and Privacy Act (FERPA)**

Your personal information and grade are confidential. Aside from routine reporting to the college required for this course, I will not share such information with anyone unless I have your permission.

3. **Academic Honesty Rules**

San Juan College expects all students to adhere to the [Academic Honesty Rules](#) as posted online. These are the official guidelines for all classes at San Juan College (July 2006).

4. **Student Conduct Statement**

College is preparation for professional opportunities, and professional conduct is expected in courses, including online classes, as well as any written communications, and interactions with members of the college community. As part of our learning community, students are expected to interact and communicate in a mature, respectful, thoughtful, and supportive manner. Students who demonstrate disrespectful, hostile, belittling, bullying or other disruptive behavior will be subject to potential consequences and possible dismissal from the college. The college will take appropriate action when students demonstrate threatening behavior (to others or self). Students should refer to the Code of Conduct in the Student Handbook for additional information.

5. **Student Safety**

Keeping students safe is a priority, and part of that is ensuring that we have the ability to communicate emergency messages – whether for school closures due to weather or for more or urgent situations. Rave is San Juan College’s emergency

messaging system. Through your SJC student email, you will automatically receive email messages, however, it is also vital that you receive text messages. In order to receive the messages, you must register in a simple process with [Rave](#). When registering, please make sure that your mobile status is “confirmed.”

The Department of Public Safety is available 24 hours per day. In an emergency, they can be accessed by calling 215-3091 or 566-3333.

In the event of an emergency, a Rave message will be sent, and depending on the situation, you will be instructed to do one of the following:

- Evacuate the building
- Shelter in place (Campus doors are locked, and operations continue as normal. During this situation, no one other than law enforcement is allowed in or out of the campus.)
- Lockdown (Campus doors are locked. All operations cease, and you should take cover in your immediate area. No one other than law enforcement is allowed in or out of the campus.)

6. Non-Discrimination, Sexual Harassment, and Retaliation.

San Juan College does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, genetic, veteran’s status, or on the basis of any other category protected under federal, state and local laws. If you have experienced sexual harassment, sexual assault, or any other form of protected class discrimination, we encourage you to make a report. If you report to a faculty member, she/he/they are obligated by policy to share knowledge, notice, and/or reports of harassment, discrimination, and/or retaliation with the Title IX Coordinator. These disclosures include but are not limited to reports of sexual assault, dating/domestic violence, and stalking. You may also make a confidential report to a SJC Counselor. Please refer to San Juan College’s [Title IX](#) site for further details.

San Juan College's Title IX Coordinator is Stacey Allen, Assistant Director of Human Resources/Equity, Diversity, and Inclusion Officer. The office is located at the Educational Services Center Building, 2nd Floor, Human Resources, Room 4243 at (505) 566-3515 or allens@sanjuancollege.edu.

7. Drop for Non-Attendance and/or Non-Participation

Class Attendance and Participation Expectation:

Face-to-Face -- Students are expected to attend and participate in class regularly. Any student missing more than 10% of consecutive class time, (For example, in a regular 15-week class that meets twice a week, this equates to the student

missing 3 consecutive classes) without consultation with the instructor may be considered as having abandoned the course.

On-line -- Students are expected to participate regularly and submit all course assignments, based on the course guide definition. A student who does not submit any assignments during a consecutive 10% of the course (1.5 weeks of a 15-week semester) without consulting the instructor, may be considered as having abandoned the course. Logging in does not meet the attendance standard.

Competency-Based Education Classes -- Students are expected to have regular and substantive interactions with their instructor and to actively work on course content. A student who has not submitted coursework, nor had substantive interactions with the instructor over a consecutive 10% of the term, without the instructor's prior approval, will be considered to have abandoned the competency progression. Last date of attendance will be recorded as the last date that coursework was submitted or that the student met with the instructor. For on-line learners, logging in does not meet the attendance standard.

8. Failure to Meet Class Participation Expectation:

Students who fail to meet participation expectations will have their last date of attendance recorded. This date will be used to recalculate any financial aid received/veteran's benefits received, and the student may be required to repay the institution/government. If the student does not drop the course, an 'X' grade will be recorded. An 'X' grade impacts the grade point average the same as an 'F'.

9. Grading Policies

Incomplete: Incomplete Grade Assignment ([Incomplete Grades Information](#))

The grade of I (Incomplete) is given for passing work that could not be completed during the semester because of circumstances beyond the student's control. Ordinarily, the assignment of an I is given by the course instructor at the time final grades are due

In no case is an I grade to be used to avoid assignment of D or F grades for marginal or failing work or to require a student to enroll in the class the next semester because work was not completed on time. Circumstances warranting the issuance of an I grade must be beyond the student's control and must be documented on the appropriate form prior to approval.

I grades can be removed only during the subsequent 16 weeks from the end of term, or within the time limit set by the instructor. Removal of an I is accomplished by completing the work in a manner acceptable to the instructor. Re-enrollment in the course under the repeat option does not remove the prior grade of I. Students should not re-enroll for the course. An I not made up within 16 weeks or within the time limit set by the instructor will change to an F grade thereafter and cannot be changed by work completion.

10. **Grade Appeals**

The policy for grade appeals is in the Academic Catalog. ([Grade Appeal Policy](#))

Student Handbook

The Student Handbook provides information on Student support, student organizations, and San Juan College policies.

[Student Handbook](#)

Program Handbook

See Course Guide in Canvas