



DEM238 Suspension and Steering Service

Course Information

Credits	2
Campus	Washburn Institute of Technology
Address	5724 SW Huntoon
City/State/Zip	Topeka, Kansas 66604
Office Fax	785-273-7080

Description

The focus of this course is hands-on work on common light, medium and heavy truck suspension and steering systems and components. Basic operating theory is covered at the level required to understand or perform the operation, maintenance, inspection, diagnosis, wear pattern interpretation, failure analysis, reconditioning, disassembly, re-assembly of systems including a basic alignment.

Textbooks

MHT - Shrink-wrapped Package: Tasksheet Manual Includes Systems & Engines / TWO Year Online Access Pack Publisher: CDX 9781284099874

OPTIONAL (in addition to above):

Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems <i>Text-Hard (paper) edition</i>	CDX 9781284041163
Fundamentals of Medium/Heavy Duty Diesel Engines <i>Text-Hard (paper) edition</i>	CDX 9781284067057

Student Learning Outcomes:

- A. Communicate effectively
- B. Integrate technology
- C. Learn effectively
- D. Demonstrate cooperative teamwork skills
- E. Apply safety in the workplace
- F. Think critically and creatively
- G. Demonstrate responsible work ethics

Competencies

Rating	Tasks Covered in this Course	Source
XXX	For every task in Suspension and Steering, the following safety task must be strictly enforced: Comply with personal and environmental safety practices associated with clothing; eye protection; hand protection; proper lifting practices; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of fuels/chemicals/materials in accordance with federal, state, and local regulations.	NATEF
XXX	The first task in Suspension and Steering is to listen to and verify the operator's concern, review past maintenance and repair documents, and determine necessary action.	NATEF
XXX	IV. SUSPENSION AND STEERING	NATEF
XXX	A. Steering Systems	NATEF
XXX	1. Steering Column	NATEF
	3. Check cab mounting and adjust ride height.	P-2
	4. Remove the steering wheel (includes steering wheels equipped with electrical/electronic controls and components); install and center the steering wheel. Inspect, test, replace and calibrate steering angle sensor.	P-1
	5. Disable and enable supplemental restraint system (SRS) in accordance with manufacturers' procedures.	P-1
XXX	2. Steering Units	NATEF
	2. Determine recommended type of power steering fluid; check level and condition; determine needed action.	P-1
	3. Flush and refill power steering system; purge air from system.	P-2
	7. Inspect, adjust, or replace power steering pump, mountings, and brackets.	P-3
	8. Inspect and replace power steering system cooler, lines, hoses, clamps/mountings, hose routings, and fittings.	P-2
XXX	3. Steering Linkage	NATEF
	1. Inspect and align pitman arm; replace as needed.	P-1
	2. Check and adjust steering (wheel) stops; verify relief pressures.	P-1

	3. Inspect and lubricate steering components.	P-1
XXX	B. Suspension Systems	NATEF
	1. Inspect front axles and attaching hardware; determine needed action.	P-1
	2. Inspect and service kingpins, steering knuckle bushings, locks, bearings, seals, and covers; determine needed action.	P-1
	3. Inspect shock absorbers, bushings, brackets, and mounts; replace as needed.	P-1
	4. Inspect leaf springs, center bolts, clips, pins and bushings, shackles, U-bolts, insulators, brackets, and mounts; determine needed action.	P-1
	5. Inspect axle aligning devices such as radius rods, track bars, stabilizer bars, torque arms, related bushings, mounts, shims, and cams; determine needed action.	P-1
	8. Inspect air springs, mounting plates, springs, suspension arms, and bushings; replace as needed.	P-1
	9. Measure and adjust ride height; determine needed action.	P-1
XXX	C. Wheel Alignment Diagnosis, Adjustment, and Repair	NATEF
	1. Identify causes of vehicle wandering, pulling, shimmy, hard steering, and off-center steering wheel problems; adjust or repair as needed.	P-1
	2. Check camber; determine needed action.	P-2
	3. Check caster; adjust as needed.	P-2
	4. Check and adjust toe settings.	P-1
	5. Check rear axle(s) alignment (thrustline/centerline) and tracking; adjust or repair as needed.	P-2
	6. Identify turning/Ackerman angle (toe-out-on-turns) problems; determine needed action.	P-3
	7. Check front axle alignment (centerline); adjust or repair as needed.	P-2

Guidelines for Success *(See Program Syllabus for additional information.)*

Assessment Plan

Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution's technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

Grading Rationale

Student progress is evaluated by means that include, but not limited to:

- Lab Work (40%)
- Professional Behavior (30%)
- Classroom Activities/Homework (10%)
- Quizzes & Tests (10%)
- Final Exams (10%)

Grading Scale

90-100% A
80-89% B
70-79% C
60-69% D
59% or less F

Attendance

Attendance is a key part of success in the program and in the workplace. Students are to arrive for class on time and be prepared to learn. Absences or tardiness will negatively impact grades. Missed time cannot be made up. Many assignments and labs cannot be "made-up" if missed. The options to make-up missed work or to accept late work is at the discretion of the instructor.

Disability

The Americans with Disabilities Act (ADA) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities MUST self-identify by completing an application. In addition students must provide appropriate medical documentation to the ADA coordinator to be eligible for accommodations. New requests for accommodations should be submitted at least two months or more prior to the date the accommodations are needed. However, please contact the ADA office as soon as a need may arise. Depending on the accommodation request, four to eight weeks lead time may be needed for timely and effective provision of accommodations.

The ADA Office coordinates and assists in arranging accommodations it deems appropriate for eligible students on a case-by-case basis. If you are a student with a disability that may substantially limit your ability to participate in any of our classes and you believe that you will need accommodations, it is your responsibility to contact:

ADA Coordinator

Phone: 785-670-3365 Email: gloria.christian@washburn.edu

It is the policy of Washburn Institute of Technology to assure equal employment and educational opportunity to qualified individuals without regard to race, color, sex, age, ancestry, marital or parental status, disability, religion, national origin, or sexual orientation/gender identity. Contact Pam Foster, Morgan Hall, Room Washburn University (785-670-1509), and pam.fosterel@washburn.edu