

**CENTRAL WASHINGTON UNIVERSITY
INDUSTRIAL AND ENGINEERING TECHNOLOGY
TRAFFIC SAFETY EDUCATION**

SED 382: Driver Task Analysis, 3 credits

FACULTY INFORMATION:

Instructor: Scott Calahan
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Office Hrs: By appointment
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COURSE PREREQUISITES: Valid Washington driver's license, acceptable driving record

COURSE DESCRIPTION: Introduction to the driving task, the highway transportation system, and a review of the required concepts and skills necessary for traffic safety education.

COURSE PURPOSE:

Prepare facilitators of learning for high-risk driver performance in Washington State

TEXT BOOKS AND OTHER REQUIRED MATERIALS:

1. State of Washington Master Curriculum Guide, 1995
2. Drive Right Teacher Edition, 2000 (optional)
3. Propulsion, Washington state TSE Student Manual, 1995 (optional)
4. Glencoe, Responsible Driving Teacher Edition, 2000 (optional)
5. Professional Journals from University Library (Internet versions acceptable)
6. License to Drive (optional)

Learner Outcomes:

Assessment:

1. Describe the history of traffic safety education in Washington state.	1. Students will identify the key events in traffic safety education in Washington state.
2. Explain the traffic safety education teacher competencies necessary for risk reduced driving.	2. Students will identify TSE teacher competencies needed for risk reduced vehicle operation.
3. Demonstrate understanding of the highway transportation system and responsible vehicle operation.	3. Assessment through midterm exam.
4. Discuss the components of the driving task including the human functions for vehicle operation.	4. Assessment through midterm exam.
5. Demonstrate understanding of space management vehicle referencing and operation for risk reduced driving.	5. Performance during an off-street vehicle reference activity and a road test administered by an approved instructor.

6. Identify the human functions for vehicle operation including WEA, IPDE, and SIPDE.	6. Assessment through midterm and/or final exam.
7. Demonstrate knowledge of motor vehicle laws, factors effective operator temporary and permanent behavior, and environmental conditions related to vehicle operation.	7. Assessment through final exam.
8. Demonstrate knowledge of vehicle control and risk reduction factors in pre-crash, crash, and post crash driving strategies.	8. Assessment through final exam.
9. Demonstrate knowledge of driver response to vehicle and driver limitations.	9. Assessment through midterm and/or final exam and in vehicle operation.

COURSE OUTLINE:

1. INTRODUCTION AND OVERVIEW:

- 1.1 Overview of course
- 1.2 Requirements and expectations
- 1.3 Resources
- 1.4 Teacher competencies and standards

2. PURPOSE AND DEVELOPMENT OF TRAFFIC SAFETY EDUCATION

- 2.1 Overview of traffic safety education national and Washington State
- 2.2 Philosophy and goals of traffic safety education
- 2.3 Economic and social impact
- 2.4 Laws and regulations

3. ORGANIZATIONAL STRUCTURE OF A MODEL TSE PROGRAM

- 3.1 Classroom and laboratory concurrent organization and integration (scope and sequence)
- 3.2 Objectives for traffic safety education
- 3.3 Washington essential learning goals

4. DRIVER AND TRAFFIC SAFETY SYSTEMS ANALYSIS

- 4.1 Introduction to Motor Vehicle Operation
 - 4.1.1 Concept of systems analysis
 - 4.1.2 Operator/machine system
 - 4.1.3 Highway Transportation System
 - 4.1.4 Consequences of HTS failure
 - 4.1.5 Managing time, space and visibility
- 4.2. The Driving Task
 - 4.2.1 Definition of the driving task
 - 4.2.2 Classification of driving tasks (Basic Control, Traffic Flow, and Critical)
 - 4.2.3 Risk management in motor vehicle operation
 - *Risk defined
 - *Factors for assessment of risk
 - *Characteristics of risk
 - *Principles of reduced risk behavior
 - 4.2.4 Judgment functions
 - 4.2.5 Reduced risk driving
 - 4.2.6 Controlling consequences of a collision

5. VEHICLE CONTROL TASKS

- 5.1 Vehicle familiarization
- 5.2 Driver operational control concepts
 - 5.2.1 WEA system of space management
 - 5.2.2 Vehicle motion and balance
 - 5.2.3 Seating position
 - 5.2.4 Steering wheel control
 - 5.2.5 Driver Operational Tasks
- 5.3 Establishing good habits for safe driving
- 5.4 Establishing vehicle position
 - 5.4.1 Visual space requirements
 - 5.4.2 Visual sight lines
 - 5.4.3 Visual referencing, front and rear limitations
 - 5.4.4 Lane position
- 5.5 LOS/POT
- 5.6 Maneuvering in limited space
 - 5.6.1 Off-street performances
 - 5.6.2 Motor-vehicle laws
 - 5.6.3 Vehicle/visual referencing
 - 5.6.4 Vehicle maneuvers
 - 5.6.5 Signs, signals, markings
 - 5.6.6 Intersection maneuvers
 - 5.6.7 Backing straight and turns
 - 5.6.8 Turnabouts, parking

6. HUMAN FUNCTIONS

- 6.1 Identify, Predict, Decide, Execute
- 6.2 WEA process
- 6.3 Sensory perception and performance of the driving task
 - *Sensory modalities critical to driving
 - *Visual process
 - *Use of the eyes (I or W process)
 - *Principles of perception
 - *Factors affecting visual capabilities
 - *Visual abilities
 - *Night driving
 - *Process of sensory perception
 - *Principles of effective visual search

7. TRAFFIC FLOW TASKS

- 7.1 Lane changing
- 7.2 Passing, being passed
- 7.3 Merging, Exiting tasks
- 7.4 Managing time, space and speed
- 7.5 Zone control concepts
- 7.6 Reference points application
- 7.7 Complex environment tasks (rural, urban city)
- 7.8 Destination driving

8. FACTORS INFLUENCING DRIVER TASK PERFORMANCE

- 8.1 Traffic laws
- 8.2 Temporary and permanent behavioral factors (fatigue, emotions, illness)

- 8.3 Alcohol and other drugs
- 8.4 Roadway conditions and variations
- 8.5 Limited visibility and traction
- 8.6 Vehicle conditions and characteristics
- 8.7 Trip planning
- 8.8 Other user characteristics
- 8.9 Natural forces
- 8.10 Energy conservation
- 8.11 Driver licensing requirements

9. CRITICAL DRIVING TASKS

- 9.1 Pre-crash conditions and situations
- 9.2 Minimizing crash effects
- 9.3 Post-crash responsibilities and laws
- 9.4 Limited visibility and traction loss factors
- 9.5 Response to vehicle and driver limitations
 - *serpentine steering
 - *controlled and threshold braking
 - *handling emergency situations
 - *maximum steering efforts
 - *factors affecting traction loss
 - *evasive actions

10. MOTORVEHICLE SYSTEMS, MAINTENANCE, SAFETY DEVICES, PERFORMANCE CAPABILITIES AND RESPONSIBLE HIGHWAY USERS:

- 10.1 Fuel conservation factors
- 10.2 Systems, maintenance, safety devices
- 10.3 Preventative maintenance, owner's manual
- 10.4 General performance characteristics
- 10.5 Health care cost factors
- 10.6 Consumer advocate
- 10.7 Environmental issues
- 10.8 Factors to evaluate when purchasing vehicles
- 10.9 Ethics and responsible driving behavior

11. LABORATORY INSTRUCTION

- 11.1 Use of driving simulators for class/lab relationship, improvement of driving performance (if available)
- 11.2 LOS/POT practice
- 11.3 In-car observations of certified TSE teachers (schedule permitting)
- 11.4 To be arranged: A road test to evaluate all class participants driving performance, (passing grade of 85% or higher is required)

INSTRUCTIONAL METHODS:

1. PowerPoint presentations of related course content
2. Small and large group discussions and activities
3. Out of class in-car observations
4. On-road test

GRADING:

- | | |
|---|---------------|
| 1. Midterm Exam (<i>80% grade is required for passing the exam</i>) | 25% of total |
| 2. Final Exam (80% grade is required for passing the exam) | 25% of total |
| 3. Road test (<i>85% is required</i>) | 20% of total |
| 4. Module tests (<i>80 % is required</i>) | 10% of total |
| 5. *Article reviews from related professional journals (1 page summary) | |
| 6. *Attendance | *20% of total |
| 7. *Assignments | |

Assignments are to be turned in at the beginning of class on the due date. Late assignments are not usually graded except in special circumstances. In such cases, the assignment will be accepted up to only one day late and will be given 50% of the earned grade.

The following grade scale will be used for exams and written assignments:

A = 95-100%,	B+ = 87-89%,	C+ = 77-79%	D+ = 67-69%	F = below 60%
A- = 90-94%,	B = 83-86%,	C = 73-76%	D = 63-66%	
	B- = 80-82%	C- = 70-72%	D- = 60-62%	

An incomplete (**I**) will be given only in special circumstances and will be determined on an individual basis. In any case the student will have two weeks or less to complete the required work.

ADA STATEMENT:

Students who have special needs or disabilities that may affect their ability to access information and or materials presented in this course are encouraged to contact the instructor and AD Compliance Officer, Director, ADA Affairs and students assistance on campus at 963-2171 for additional disability related educational accommodations.

Summer 2006

ESSENTIAL LEARNING PERFORMANCES:

Upon completion of the course, the student will be able to:

1. discuss the history of driver education in the U.S.
2. describe the development of traffic safety education in the state of Washington from 1963 to the present time
3. explain the organizational structure of a model TSE program including both class and lab
4. demonstrate knowledge of systems and the highway transportation system
5. explain the components of the driving task including the human functions for vehicle operation (WEA, IPDE, SIPDE)
6. demonstrate vehicle referencing, vehicle control techniques and risk management
7. demonstrate knowledge of space management procedures for vehicle operation in various traffic environments
8. demonstrate knowledge of the following factors that affect vehicle performance: traffic laws, temporary and permanent behavioral factors, alcohol and drugs, environmental conditions, vehicle conditions, vehicle control and space management
9. explain Washington State licensing requirements for adult and beginning drivers
10. explain factors that affect vehicle control: limited visibility, road conditions, and driver limitations
11. explain pre-crash, crash and post-crash driving strategies and related factors
12. identify responsible highway user factors, motor vehicle systems, maintenance and safety devices

