November 14, 2008  
ADM 204  
9:30 – 11:30 am

I. Roll Call

( ) Patricia Sandberg, Chair  ( ) Debra Russ  ( ) Judith Moore  ( ) Arun Upadhyay
( ) Diane Erickson  ( ) Peter Olsson  ( ) Terri Olson  ( ) Vacant (FS At Large)
( ) Minnie Yen  ( ) Arlene Schmuland  ( ) Paula Williams
( ) Gabe Garcia  ( ) Jens Munk  ( ) Dan Kline

II. Approval of Agenda (pg. 1-2)

III. Approval of Meeting Summary (pg. 3-4)

IV. Administrative Reports

A. Vice Provost Tom Miller

B. Vice Provost for Research and Dean of the Graduate School

V. Chair’s Report

A. GAB Chair – Patt Sandberg

B. Faculty Alliance- Patt Sandberg

VI. New Business

A. UAB/GAB ILO Task Force (documents emailed)

VII. Program/Course Action Request - Second Reading

VIII. Program/Course Action Request - First Reading

Chg NS A602 Advanced Health Assessment in Primary Care (3 cr) (2+3) (pg. 5-10)

Chg NS A610 Pharmacology for Primary Care (3 cr) (3+0) (pg. 11-17)

Chg NS A621 Knowledge Development for Advanced Nursing Practice (4 cr) (4+0) (pg. 18-23)

Chg NS A624 Qualitative Nursing Research (3 cr) (3+0) (pg. 24-29)

Add CE A623 Traffic Engineering (3 cr) (2+2) (stacked with CE A423) (pg. 30-39)

Add CE A624 Pavement Design (3 cr) (2+2) (stacked with CE A424) (pg. 40-51)

Add CE A625 Highway Engineering (3 cr) (2+3) (stacked with CE A425) (pg. 52-63)

Chg Master of Science, Career and Technical Education (pg. 64-66)

Add CTE A643 Teaching in Career and Technical Education (3 cr) (3+0) (pg. 67-71)

Add CTE A655 Curriculum and Assessment in Career and Technical Education (3 cr) (3+0) (pg. 72-76)

IX. Old Business

X. Informational Items and Adjournment

A. Curriculum Log

B. Catalog Copy (Chapters 10, 11, 12) in Word Format

C. Reminder Additional GAB meeting in November 21 at 11:00
D. http://gov.alaska.edu/faculty/2008-08-19AMP.pdf
I. **Roll Call**
   (x) Patricia Sandberg, Chair  (x) Debra Russ  (x) Judith Moore  ( ) Arun Upadhyay
   (x) Diane Erickson  (x) Peter Olsson  ( ) Terri Olson  ( ) Vacant (FS At Large)
   (x) Minnie Yen  (e) Arlene Schmuland  (x) Paula Williams
   (e) Gabe Garcia  (x) Jens Munk  (x) Dan Kline

II. **Approval of Agenda (pg. 1)**

III. **Approval of Meeting Summary – October 10, 2008 (pg. 2)**

IV. **Administrative Reports**
   A. Vice Provost Tom Miller
      No report
   B. Vice Provost for Research and Dean of the Graduate School
      Interim Vice Provost announcement will be made by the end of next week

V. **Chair’s Report**
   A. GAB Chair – Patt Sandberg
      Goals for year
      ILO Task Force Volunteer
      Extra meeting for Accreditation
      Master Plan
   B. Faculty Alliance- Patt Sandberg

VI. **Program/Course Action Request - Second Reading**
   Add Earthquake Engineering Graduate Certificate (pg. 3-10)
   Approved
   Chg CE A610 Engineering Seismology (3 cr) (3+0) (pg. 11-15)
   Chg CE A611 Geotechnical Earthquake Engineering (3 cr) (3+0) (pg. 16-21)
   Chg CE A634 Structural Earthquake Engineering (3 cr) (3+0) (pg. 22-26)
   Add CE A636 Multi-Story Building Structural Design (3 cr) (3+0) (pg. 27-31)
   Add CE A637 Earthquake Resistant Structural Design (3 cr) (3+0) (pg. 32-35)
   Add CE A639 Loads on Structures (3 cr) (3+0) (pg. 36-40)
   Approved all CE courses
   Add Post-Graduate Certificate in Counselor Education (pg. 41-50)
   Approved

VII. **Program/Course Action Request - First Reading**
   None

VIII. **Old Business**

IX. **New Business**
   A. GAB Goals for 2008-2009
      Approved
   B. Additional GAB meeting in November
      7 people able to attend extra meeting on November 21 at 11:00
      Paula, Dan, Diane, Minnie, Arlene, Peter, Patt
   C. UAB/GAB ILO Task Force
X. Informational Items and Adjournment
   A. Curriculum Log
   B. Catalog Copy (Chapters 10, 11, 12) in Word Format
**Curriculum Action Request**  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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<tbody>
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<td>HW CHSW</td>
<td>ADSN Division of Nursing</td>
<td>NUR</td>
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<table>
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<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEU</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
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<td>A602</td>
<td>N/A</td>
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6. Complete Course/Program Title  
Advanced Health Assessment in Primary Care  
Adv Health Assessment

**Abbreviated Title for Transcript (30 character)**

7. Type of Course  
- [ ] Academic  
- [ ] Non-credit  
- [ ] CEU  
- [ ] Professional Development

8. Type of Action  
- [ ] Add  
- [X] Change  
- [ ] Delete

- Prefix  
- Credits  
- Title  
- Grading Basis  
- Course Description  
- Test Score Prerequisites  
- Other Restrictions  
- Class  
- Level  
- College  
- Major  
- Other CCG

9. Repeat Status  
- [ ] NA  
- [ ] # of Repeats  
- [ ] Max Credits

10. Grading Basis  
- [X] A-F  
- [ ] P/NP  
- [ ] NG

11. Implementation Date  
- From:  
- To: /9999

12. [ ] Cross Listed with NA  
- [ ] Stacked with NA  
- [ ] Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course  
Master of Science, Nursing Science: Family Nurse Practitioner, Nursing Education, or Psychiatric-Mental Health Nurse Practitioner options.

14. Coordinate with Affected Units:  
Faculty List serve  
Department, School, or College

Initiator Signature  
Date

15. [ ] General Education Requirement  
- Oral Communication  
- Written Communication  
- Quantitative Skills  
- Humanities  
- Fine Arts  
- Social Sciences  
- Natural Sciences  
- Integrative Capstone

16. Course Description  
Provides a systematic approach to advanced physical, psychological, sociocultural, developmental and spiritual assessment of individuals across the lifespan. Builds on basic health assessment knowledge and skills, laboratory and radiology interpretation, validation, documentation and analysis of assessment findings.

17a. Course Prerequisite(s) (list prefix and number)  
N/A

17b. Test Score(s)  
NA

17c. Co-requisite(s) (concurrent enrollment required)  
NA

17d. Other Restriction(s)  
- [X] College  
- [ ] Major  
- [ ] Class  
- Level

17e. Registration Restriction(s) (non-codable)  
Grade of C or better in an undergraduate health and physical assessment course. Admission to graduate nursing program, Family Nurse Practitioner, Nursing Education, or Psychiatric-Mental Health Nurse Practitioner option. Current Alaska RN licensure.

18. [X] Mark if course has fees

19. Justification for Action  
Update course description, CCG and registration restrictions.
Course Content Guide
University of Alaska Anchorage
College of Health and Social Welfare

I. Date of Initiation: Spring 2008

II. Course Information
   A. College/School: CHSW / School of Nursing
   B. Course Subject: NS
   C. Course Number: A602
   D. Number of Course Credits: 3.0
   E. Contact Hours: (2 + 3)
   F. Course Program: Master of Science, Nursing Science
   G. Course Title: Advanced Health Assessment in Primary Care
   H. Grading Basis: A-F
   I. Implementation Date: Fall 2008
   J. Course Description: Provides a systematic approach to advanced physical, psychological, sociocultural, developmental and spiritual assessment of individuals across the lifespan. Builds on basic health assessment knowledge and skills, laboratory and radiology interpretation, validation, documentation and analysis of assessment findings.
   K. Course Prerequisites: N/A
   L. Course Co-requisites: N/A
   M. Other Restrictions: Level
   N. Registration Restrictions: Grade of C or better in an undergraduate health and physical assessment course. Admission to graduate nursing program, Family Nurse Practitioner, Nursing Education, or Psychiatric-Mental Health Nurse Practitioner option. Current Alaska RN licensure.
   O. Course Fee: Yes

III. Instructional Goals:
   The instructor will:
   A. Demonstrate appropriate health history taking, physical assessment, and documentation techniques for individuals of all ages, taking into consideration physiological, cultural, spiritual, and developmental differences
   B. Familiarize students with various diagnostic tests and how they can aid in making a diagnosis
   C. Provide an overview of how to develop differential diagnosis
   D. Assist students in recognizing the limits of their scope of practice.
### IV. Student Outcomes

<table>
<thead>
<tr>
<th>1. Utilize advanced communication skills in completing episodic and comprehensive health histories with clients of all ages, addressing psychological, physiological, sociocultural, developmental and spiritual differences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Conduct holistic, systematic and comprehensive physical assessments.</td>
</tr>
<tr>
<td>3. Apply a problem-solving approach to the collection, synthesis and communication of data gathered and formulate accurate differential diagnoses based on assessment findings.</td>
</tr>
<tr>
<td>4. Correlate history and physical findings with diagnostic tests and/or other assessment data.</td>
</tr>
<tr>
<td>5. Recognize scope of practice limitations by seeking physician consultation appropriately.</td>
</tr>
<tr>
<td>6. Accurately report and document assessment findings.</td>
</tr>
</tbody>
</table>

### V. Assessment Methods

| 1. Exam, interactive role playing, physical exam check-offs on clients across lifespan |
| 2. Physical exam check-off on clients across lifespan |
| 3. Case study analysis, student presentations, exam |
| 4. Exam, write-ups of in-class scenarios, completion of online radiographic module, case studies |
| 5. Exam, class discussion, case studies |
| 6. Exam, write-ups of in-class scenarios |

### VI. Course Level Justification:

This is a graduate-level core course in the Masters of Science that is required of all graduate students in the nurse practitioner tracks. This course builds on undergraduate physical assessment skills. It provides the foundation for physical assessment needed in diagnosing and screening of clients as a certified nurse practitioner.

### VII. Topical Course Outline:

1.0 Role of advanced practice nurse
   1.1 History taking
   1.2 Physical assessment
   1.3 Differential diagnosis
   1.4 Documentation
   1.5 Scope of practice

2.0 Health history
   2.1 Chief complaint
2.2 Components of the history of present illness (HPI)
2.3 Past medical history
2.4 Family and social history
2.5 Review of systems
3.0 Components of documentation
3.1 Subjective
3.2 Objective
3.3 Assessment
3.4 Plan
3.5 Complete exam write-up versus a problem-focused write-up
4.0 Diagnosis
4.1 Symptom analysis
4.2 Differential diagnosis
5.0 Skin and Lymph
5.1 Hair and nails
5.2 Describing skin lesions
5.3 Lymph glands by region
6.0 Head, eyes, ears, nose and throat (HEENT)
6.1 Eye exam, visual testing, ophthalmoscope
6.2 Ear exam, otoscopic, hearing evaluation
6.3 Nose, sinuses, mouth, throat evaluation
7.0 Breast evaluation
7.1 Mammacare
7.2 Breast masses
8.0 Abdomen
9.0 Cardiac
9.1 EKGs
9.2 Heart sounds
10.0 Pulmonary
10.1 Lung sounds
10.2 Thorax configurations
10.3 Peripheral vascular system
11.0 Neurology
11.1 Cranial Nerves
11.2 Motor/sensory
12.0 Mental Health
12.1 Mini-mental exam
12.2 Anxiety/depression
13.0 Genital
13.1 Sexually transmitted infections (STI)
13.2 Female exam  
13.3 Male exam  
14.0 Pediatrics  
14.1 Eye exam  
14.2 Denver Developmental Screening Test (DDST-II)  
14.3 The uncooperative child  
15.0 Musculoskeletal assessment  
15.1 Joints, extremities  
15.2 Reflexes  

VIII. Suggested Textbooks:  


IX. Bibliography  


# Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

**1a. School or College**
- HW CHSW

**1b. Division**
- ADSN Division of Nursing

**1c. Department**
- NUR

**2. Course Prefix**
- NS

**3. Course Number**
- A610

**4. Previous Course Prefix & Number**
- N/A

**5a. Credits/CEU**
- 3

**5b. Contact Hours**
- (Lecture + Lab) (3+0)

**6. Complete Course/Program Title**
- Pharmacology for Primary Care

**7. Type of Course**
- [x] Academic  [ ] Non-credit  [ ] CEU  [ ] Professional Development

**8. Type of Action**
- [x] Course  [ ] Program
- [ ] Add  [ ] Change  [ ] Delete

**9. Repeat Status**
- N/A  # of Repeats: No  Max Credits

**10. Grading Basis**
- [x] A-F  [ ] P/NP  [ ] NG

**11. Implementation Date**
- From: Fall 2008  To: 9999

**12. Cross Listed with**
- N/A

**13. List any programs or college requirements that require this course**
- Master of Science, Nursing Science, Family Nurse Practitioner and Psychiatric Mental-Health Nurse Practitioner options

**14. Coordinate with Affected Units**
- Faculty Listserv
- Department, School, or College  Initiator Signature  Date

**15. General Education Requirement**
- [ ] Oral Communication  [ ] Written Communication  [ ] Quantitative Skills  [ ] Humanities
- [ ] Fine Arts  [ ] Social Sciences  [ ] Natural Sciences  [ ] Integrative Capstone

**16. Course Description**
- Advanced level pharmacology course that assists health care professionals in the selecting, prescribing, and monitoring of pharmaceutical agents utilized in the primary care setting. Legend drugs, over-the-counter agents, and some complementary therapeutics will be discussed. Emphasis is on the pharmacodynamics of medications most commonly prescribed for the treatment of respiratory diseases, infections, genitourinary disease, preventive health, dermatological diseases, musculoskeletal conditions, cardiovascular diseases, depression and anxiety, and reproductive health.

**17a. Course Prerequisite(s)**
- None

**17b. Test Score(s)**
- N/A

**17c. Co-requisite(s)**
- NS A661 or NS A671

**17d. Other Restriction(s)**
- [ ] College  [ ] Major  [ ] Class  [ ] Level

**17e. Registration Restriction(s)**
- Current license to practice as a registered nurse in the state of Alaska.

**18. Mark if course has fees**

**19. Justification for Action**
- CCG, course description update, and addition of co-requisites.

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**Initiator (faculty only)**
- Date

**Initiator (PRINT NAME)**
- Approved  Disapproved
- Date

**Dean/Director of School/College**
- Approved  Disapproved
- Date

**Department Chairperson**
- Approved  Disapproved
- Date

**Undergraduate or Graduate**
- Approved  Disapproved
- Date

**Academic Board Chairperson**
- Approved  Disapproved
- Date

**Provost or Designee**
- Approved  Disapproved
- Date
I. **Date of Initiation:** Spring 2008

II. **Course Information**
   A. **College/School:** CHSW / School of Nursing
   B. **Course Subject:** NS
   C. **Course Number:** A610
   D. **Course Credits:** 3.0
   E. **Contact Hours:** (3 + 0)
   F. **Course Program:** Master of Science, Nursing Science
   G. **Course Title:** Pharmacology for Primary Care
   H. **Grading Basis:** A-F
   I. **Implementation Date:** Fall 2008
   J. **Course Description:** Advanced level pharmacology course that assists health care professionals in the selecting, prescribing, and monitoring of pharmaceutical agents utilized in the primary care setting. Legend drugs, over-the-counter agents, and some complementary therapeutics will be discussed. Emphasis is on the pharmacodynamics of medications most commonly prescribed for the treatment of respiratory diseases, infections, genitourinary disease, preventive health, dermatological diseases, musculoskeletal conditions, cardiovascular diseases, depression and anxiety, and reproductive health.
   K. **Course Prerequisites:** N/A
   L. **Course Co-requisites:** NS A661 or NS A671
   M. **Other Restrictions:** Level
   N. **Registration Restrictions:** Current license to practice as a registered nurse in the state of Alaska.
   O. **Course Fee:** Yes

III. **Instructional Goals:**
   The instructor will:
   A. Provide an overview of the principles of pharmacokinetics.
   B. Familiarize students with physiologic effect, common adverse effects, dosing, scheduling, route of administration and contraindications to drug therapy.
   C. Foster an understanding of the following issues as they relate to prescribing and monitoring of pharmacologic therapies in patients across
the lifespan: the economical issues, the ethical and legal scope of practice, and the interactions of non-prescription therapies with prescription therapies.

D. Present relevant client education strategies to facilitate client compliance and collaboration in treatment and to maximize therapeutic response.

<table>
<thead>
<tr>
<th>IV. Student Outcomes</th>
<th>V. Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student will:</td>
<td></td>
</tr>
<tr>
<td>1. Utilize pharmacokinetic principles as a guide in selecting appropriate agents, prescribing appropriate dosing schedules and administration routes, and establishing effective monitoring systems.</td>
<td>Exam questions, case studies, Blackboard discussion board or other e-learning modalities.</td>
</tr>
<tr>
<td>2. Apply assessment information about the client and knowledge of pathophysiology to prescribe or recommend appropriate pharmacologic interventions.</td>
<td>Exam questions, Blackboard discussion board or other e-learning modalities, and student presentations.</td>
</tr>
<tr>
<td>3. Employ principles of teaching/learning and understanding of compliance theory to enable the client to take prescribed and recommended drugs safely and effectively.</td>
<td>Student presentations, Blackboard discussion cases, and exam questions.</td>
</tr>
<tr>
<td>4. Predict potential adverse reactions to prescribed and/or recommended pharmacologic agents and identify such reactions when they occur.</td>
<td>Blackboard case discussions, exam questions, and student presentations.</td>
</tr>
<tr>
<td>5. Facilitate clients’ ability to take prescribed and recommended agents in a manner that will maximize therapeutic effect and minimize the development of adverse drug reactions.</td>
<td>Student presentations, Blackboard case studies, and exam questions.</td>
</tr>
<tr>
<td>6. Recognize the potential for adverse drug reactions based on drug-drug, drug-diet, including herbal and dietary supplements, and drug-disease interactions and integrate that recognition into clinical practice.</td>
<td>Student presentations, Blackboard case studies, and exam questions.</td>
</tr>
<tr>
<td>7. Demonstrate recognition of scope of practice limitations by identifying when there is a need for physician consultation.</td>
<td>Blackboard case studies and exam questions.</td>
</tr>
</tbody>
</table>
VI. **Course Level Justification:**
This is a graduate-level core course in the Master of Science, Nursing Science program that is required for the Family Nurse Practitioner and Psychiatric-Mental Health Nurse Practitioner options. This course builds on undergraduate pharmacology. It provides the foundation for prescriptive authority as a certified Family or Psychiatric-Mental Health nurse practitioner.

VII. **Topical Course Outline:**
1.0 Course overview
2.0 Scope of practice
   2.1 Scope of practice variations across the U.S.
   2.2 Approach to prescribing
      2.2.1 Prescriptive authority
      2.2.2 Barriers
      2.2.3 Decisions
   2.3 Role delineation of registered nurses and advanced nurse practitioners
3.0 Pharmacologic agents and special populations
   3.1 Pediatrics
   3.2 Geriatrics
   3.3 Pregnant women
   3.4 Lactating women
4.0 Non-steroidal anti-inflammatory drugs and analgesics
   4.1 Components and types of pain
   4.2 Treatments
   4.3 Addiction
   4.4 Adjunctive therapies
5.0 Neurology problems & medication
   5.1 Dementias
   5.2 Headaches
   5.3 Seizures
   5.4 Parkinson’s disease
6.0 Psychotropic medications
   6.1 Attention deficit disorder (ADD) and attention deficit hyperactive disorder (ADHD)
   6.2 Depression
   6.3 Anxiety
   6.4 Mood disorders
   6.5 Smoking cessation
   6.6 Weight loss
6.7 Other psychiatric diagnoses

7.0 Endocrine disorders & medications
   7.1 Thyroid
   7.2 Adrenals
   7.3 Pancreas
   7.4 Sex Hormones

8.0 Cardiac disorders & medications
   8.1 Hypertension
   8.2 Dyslipidemia
   8.3 Angina
   8.4 Congested heart failure
   8.5 Anemia

9.0 Infection & antimicrobials
   9.1 Host
   9.2 Drugs
   9.3 Lab factors associated with antibiotic treatments
   9.4 Treatment failures
   9.5 Classes of antimicrobials

10.0 Antimicrobial treatment for common respiratory infections
    10.1 Chronic Obstructive Pulmonary Disease (COPD)
    10.2 Asthma
    10.3 Pneumonia
    10.4 Tuberculosis

11.0 Gastrointestinal disorders & medications

12.0 Dermatology disorders & medications

13.0 Dietary Supplements
    13.1 Definition
    13.2 Reputable resources
    13.3 Interactions with other medications

14.0 Alternative Medications
    14.1 Definitions
    14.2 Current research
    14.3 Interactions with other medications.

VIII. Suggested Textbooks:


IX. Bibliography:


### Knowledge Development for Advanced Nursing Practice

<table>
<thead>
<tr>
<th>1a. School or College</th>
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<th>2. Course Prefix</th>
<th>3. Course Number</th>
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<th>Fine Arts</th>
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<table>
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<td>Contributes to the development of advanced practice nurses through the integration of theory from nursing and other disciplines to describe and explain human responses in health and illness. Theories will be critically analyzed for adequacy of conceptualization, measurement, and application. Selected theories vary and include adaptation, illness prevention, health promotion, and change in relation to individuals, families, and groups.</td>
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<table>
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<tr>
<th>17a. Course Prerequisite(s) (list prefix and number)</th>
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<td>College</td>
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<tr>
<th>18. Mark if course has fees</th>
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<tr>
<th>19. Justification for Action</th>
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<tbody>
<tr>
<td>Updated in accordance with current state of knowledge related to theoretical content within graduate nursing programs. Consistent with recommendations of the American Association of Colleges of Nursing (AACN).</td>
</tr>
</tbody>
</table>
I. Date of Initiation: Spring 2008

II. Course Information
A. College: HW CHSW
B. Course Subject: NS
C. Course Number: A621
D. Number of Course Credits: 4
E. Contact Hours: (4+0)
F. Course Program: Master of Science, Nursing Science
G. Course Title: Knowledge Development in Advanced Nursing Practice
H. Grading Basis: A-F
I. Implementation Date: Fall 2009
J. Course Description: Contributes to the development of advanced practice nurses through the integration of theory from nursing and other disciplines to describe and explain human responses in health and illness. Theories will be critically analyzed for adequacy of conceptualization, measurement, and application. Selected theories vary and include adaptation, illness prevention, health promotion, and change in relation to individuals, families, and groups.
K. Course Prerequisites: None
L. Course Co-requisites: None
M. Registration Restrictions: Graduate standing
N. Course Fee: Yes

III. Instructional Goals
The instructor will:
A. Foster an understanding of historical foundations, philosophic and current perspectives on various theories relevant to the development of nursing knowledge.
B. Review theory construction, including concept analysis and the use of models.
C. Introduce levels of theory development in the building of nursing knowledge.
D. Facilitate critical dialogue on application and implications of theory in nursing practice.
E. Guide discussion on the ethical and scientific principles/issues relevant to the theoretical basis of advanced practice nursing.
<table>
<thead>
<tr>
<th>IV.</th>
<th>Student Outcomes</th>
<th>V. Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upon completion of the course, the student will be able to:</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Discuss the enterprise of knowledge development, its aims and goals, and the current state of knowledge development.</td>
<td>Demonstrate participation and critical reflection in online discussion board regarding the evolution of using nursing theory in nursing practice.</td>
</tr>
<tr>
<td>2.</td>
<td>Examine the sources of family theories and their contribution to advanced nursing practice.</td>
<td>Peer group discussion based on relevant assignments and critique. Written Family application paper.</td>
</tr>
<tr>
<td>3.</td>
<td>Compare and contrast various levels and types of theory.</td>
<td>Peer group dialogue based on relevant assignments and critique. Written Theoretical Model paper.</td>
</tr>
<tr>
<td>4.</td>
<td>Critically analyze theories for their relevance to diverse populations.</td>
<td>Peer group discussions and presentation critiques using e-learning formats.</td>
</tr>
<tr>
<td>5.</td>
<td>Explore and examine relationships of knowledge development and ethics for advanced practice.</td>
<td>Successful completion of theoretical PowerPoint presentation. Inclusion of ethical considerations in all discussions of theoretical application to practice.</td>
</tr>
</tbody>
</table>

VI. **Course Level Justification:** Updated in accordance with current state of knowledge related to theoretical content within graduate nursing programs that builds on essential foundational content in baccalaureate nursing education. Consistent with recommendations of the American Association of Colleges of Nursing (AACN) for content considered essential to a master’s educational program in nursing.

VII. **Topical Course Outline:**

1.0 Introduction
   1.1 Ways of knowing
   1.2 What is nursing theory?
   1.3 Why does nursing need theory?
2.0 Historical overview: Perspectives on science and nursing
3.0 Concept analysis of family: Family theories
4.0 Application of family theories to advanced nursing practice
5.0 Theory construction
   5.1 Concept analysis
5.2 Use of models

6.0 Types of theories
   6.1 Grand theories
   6.2 Middle range theories
   6.3 Educational theories

7.0 Relationships among theory, research and advanced nursing practice

8.0 Theory and ethics

VIII. Suggested Textbooks:


IX. Bibliography:


***Indicates classic article
<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Division</th>
<th>1c. Department</th>
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<tr>
<td>HW CHSW</td>
<td>ADSN Division of Nursing</td>
<td>NUR</td>
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<td>NS</td>
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<td>N/A</td>
<td>3</td>
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<table>
<thead>
<tr>
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<tr>
<td>Qualitative Nursing Research</td>
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<tr>
<td>Qualitative Nursing Research</td>
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Abbreviated Title for Transcript (30 character)

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<td>N/A</td>
<td>N/A</td>
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13. List any programs or college requirements that require this course
N/A this is an elective

14. Coordinate with Affected Units: Faculty list serve
Department, School, or College

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<tr>
<th>15. General Education Requirement</th>
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<td>Oral Communication</td>
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<td>Written Communication</td>
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<tr>
<td>Quantitative Skills</td>
</tr>
<tr>
<td>Humanities</td>
</tr>
<tr>
<td>Fine Arts</td>
</tr>
<tr>
<td>Social Sciences</td>
</tr>
<tr>
<td>Natural Sciences</td>
</tr>
<tr>
<td>Integrative Capstone</td>
</tr>
</tbody>
</table>

16. Course Description
Focuses on qualitative paradigms, traditions, philosophical foundations and methods for studying nursing and health related phenomena. Develop and critique data collection processes and approaches to data analysis. Explore scientific and ethical issues surrounding qualitative research.

<table>
<thead>
<tr>
<th>17a. Course Prerequisite(s) (list prefix and number)</th>
<th>17b. Test Score(s)</th>
<th>17c. Co-requisite(s) (concurrent enrollment required)</th>
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<td>NS A620</td>
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</tbody>
</table>

<table>
<thead>
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<th>17d. Other Restriction(s)</th>
<th>17e. Registration Restriction(s) (non-codable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College  Major  Class  Level</td>
<td>Graduate standing or faculty permission</td>
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</table>

18. Mark if course has fees

19. Justification for Action
This is an elective course for graduate students who wish to use qualitative methodology for their Thesis or Project. It builds on the introduction to qualitative research taught in the core graduate Research Methods class.
I. Date of Initiation: 11/2008

II. Course Information
A. **College:** HW CHSW
B. **Course Subject:** NS
C. **Course Number:** A624
D. **Number of Course Credits:** 3
E. **Contact Hours:** (3 + 0)
F. **Course Program:** Master of Science, Nursing Science
G. **Course Title:** Qualitative Nursing Research
H. **Grading Basis:** A-F
I. **Implementation Date:** Spring 2009
J. **Course Description:** Focuses on qualitative paradigms, traditions, philosophical foundations and methods for studying nursing and health related phenomena. Develop and critique data collection processes and approaches to data analysis. Explore scientific and ethical issues surrounding qualitative research.

K. **Course Prerequisites:** NS A620
L. **Course Co-requisites:** N/A
M. **Registration Restrictions:** Graduate standing or faculty permission.
N. **Course Fee:** Yes

III. Instructional Goals
The instructor will:
1. Provide historical and current perspectives on various qualitative paradigms, traditions, philosophical foundations and methods as they relate to nursing research.
2. Illustrate evidence-based practices related to qualitative research.
3. Introduce ethical and scientific principles and issues concerning qualitative research.

IV. **Student Outcomes:** The students will:

<table>
<thead>
<tr>
<th><strong>Assessment Methods</strong></th>
<th><strong>Student Outcomes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation and critical reflection in online discussion board regarding qualitative paradigm</td>
<td>1. Describe qualitative paradigms, traditions, philosophical foundations and methods.</td>
</tr>
<tr>
<td>Peer group discussion online and in class</td>
<td>2. Evaluate the role of qualitative research in the development of nursing and health related theory.</td>
</tr>
</tbody>
</table>
**IV. Student Outcomes:** The students will:

<table>
<thead>
<tr>
<th>Assessment Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Critique qualitative data collection methods.</td>
</tr>
<tr>
<td>4. Critically appraise literature focusing on a qualitative method.</td>
</tr>
<tr>
<td>5. Assess ethical and scientific issues concerning qualitative research.</td>
</tr>
</tbody>
</table>

**V. Course Level Justification**

This is an elective course for graduate students who wish to use qualitative methodology for their Thesis or Project. It builds on the introduction to qualitative research taught in the core graduate Research Methods class.

**VI. Topical Course Outline**

1.0 The Qualitative Perspective
   1.1 Qualitative research paradigms
   1.2 Philosophical foundations, traditions, and methods

2.0 Qualitative Methods of Inquiry
   2.1 phenomenology
   2.2 Grounded Theory
   2.3 Ethnography
   2.4 Action
   2.5 Narrative

3.0 Data Collection and Analyses
   3.1 Interview approaches
   3.2 Participant observation
   3.3 Transcription issues
   3.4 Journaling
   3.5 Coding
   3.6 Computer techniques

4.0 Evidence-based processes in qualitative research

5.0 Issues and Strategies
   5.1 Ethical concerns
   5.2 Rigor
   5.3 Trustworthiness
   5.4 Role of theory

**VII. Suggested Textbooks**


**VIII. Bibliography**


## Traffic Engineering

### Abbreviated Title for Transcript (30 character)

### Type of Course
- Academic
- Non-credit
- CEU
- Professional Development

### Type of Action
- Add
- Change
- Delete

### Course Description
Traffic engineering studies and analysis, traffic flow theory, traffic control systems design, signalization, and capacity analyses.

### Co-requisite(s)
Concurrent enrollment required.

### Other Restriction(s)
Graduate standing.

### Justification for Action
Elective course for Master of Science in Civil Engineering, providing specialized practical training in transportation engineering. Course to be stacked with CE A423 Traffic Engineering.
Department: Civil Engineering

Course Prefix, Number, and Title: CE A623 Traffic Engineering

I. Course description
Traffic engineering studies and analysis, traffic flow theory, traffic control systems design, signalization, and capacity analyses.

II. Course Design

A. Fundamental intent: Designed as a technical elective for graduate students majoring in Civil Engineering. Course to be stacked with CE A423 Traffic Engineering.

B. Number of Semester Credits: Three (3)

C. Course Schedule: Standard fifteen (15) week semester.

D. Lectures Hours/week: Two (2)

E. Laboratory Hours/week: Two (2)

F. Total time of work expected outside of class: Five (5) hours per week.

G. Programs that require this course: Technical elective for Masters of Science in Civil Engineering.

H. Grading: A – F

I. Coordination with affected unites: Faculty list serve. Only the Department of Civil Engineering is affected.

J. Justification for Action: Elective course for the Masters of Science in Civil Engineering, providing specialized practical training in transportation engineering.

K. Prerequisite: Graduate Level.

L. Registration Restrictions: Graduate standing.
III. Course level justification
   A. The course will involve application of engineering and scientific knowledge and skills typical of graduate engineering students.
   B. The primary context of the course will be discussion and interaction among professional peers on advanced topics, with the basic assumption that students are accustomed to this level of interaction.
   C. Lectures, multimedia presentations, and required reading will include advanced scientific and engineering topics that require for correct interpretation a background in math and science equivalent to that of master’s degree programs in engineering.
   D. Students in the course analyze measured data and evaluate analytical methods to solve problems typical of advanced engineering and applied science research and practice.
   E. Significant responsibility for independent critical thinking, efficient learning habits, and interpretation of technical information will fall on the student, at a level commonly associated with graduate education.

IV. Course Outline
   A. Introduction to traffic engineering and its scope
      1. Components of the systems and their characteristics
      2. Roadways and their geometric characteristics
      3. Introduction to traffic control devices
      4. Intelligent transportation systems
   B. Traffic engineering studies and analysis
      1. Statistical applications in traffic engineering
      2. Volume studies and characteristics
      3. Speed, travel, time and delay studies
      4. Parking studies and programs
   C. Traffic control
      1. Traffic control for freeways
      2. Traffic control for rural highways
   D. Intersection control and design
      1. Introduction to intersection control
      2. Basic principles of intersection signalization
      3. Fundamentals of signal design and timing
      4. Elements of intersection design
      5. Actuated signal control and detection
      6. Analysis of signalized intersections
      7. Applications of signalized intersection analysis
   E. Capacity level and level of service analysis
      1. Freeways and multilane rural highways
      2. Signalized intersections

V. Instructional Goals and Student Outcomes
   A. Instructional Goals. Instructor will enable the student to:
      1. have basic skills in the traffic engineering design and analysis of highway facilities,
      2. have skills for conducting traffic engineering data collection, and studies,
      3. understand the basics in traffic design and control,
      4. design a signalized intersection,
      5. understand the basics in capacity and Level of Service analysis,
      6. analyze and evaluate the capacity of a signalized intersection,
7. present his/her work as an engineer and communicate with others in a professional manner,
8. preserve, share, and analyze information in traffic engineering using the basic knowledge
   and skills attained during class and field work,
9. work as a team to achieve their goals efficiently and professionally,
10. consider the wider perspective and diversity of the engineering profession when dealing with
    the social, economic, and environmental aspects in traffic engineering.

B. Student Outcomes. Students who successfully complete this course will demonstrate
   knowledge and skills in the following areas:
   1. visualize the traffic engineering in perspective to highway engineering,
   2. integrate and interact with the prospective transportation professionals and agencies,
   3. understand the importance of the interaction of the different components of traffic
      engineering components,
   4. be able to deliver a project report that meets the objectives of the traffic design aspect under
      consideration,
   5. realize the diminutions’ of the components of traffic systems,
   6. be able to understand the basics in the design and analysis of traffic engineering systems,
   7. have the ability to focus on further courses in the field of transportation engineering to
      enhance his/her knowledge and skills in the design, operation, and management of highway
      facilities.

VI. Course Activities
A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic
   examinations.
B. Students are assigned required reading and homework problems to analyze measured data and
   evaluate analytical solution methods.
C. Students will complete a scientific paper and design project in the field of Traffic Engineering
   within the course time frame.
D. Students are required to perform experiments in the field, collect data, and analyze data in the
   field of Traffic engineering.

VII. Course Evaluation. Methods of evaluation may include but are not limited to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualize the traffic engineering in perspective to highway engineering.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Integrate and interact with the prospective transportation professionals and agencies.</td>
<td>Performance in presentation of scientific paper and in a design project.</td>
</tr>
<tr>
<td>Understand the importance of the interaction of the different components of traffic engineering components.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>Be able to deliver a project report that meets the objectives of the traffic design aspect under consideration.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>Realize the diminutions’ of the components of traffic systems.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>Be able to understand the basics in the design and analysis of traffic engineering systems.</td>
<td>Performance in presentation of scientific paper and in a design project.</td>
</tr>
<tr>
<td>Have the ability to focus on further courses in the field of transportation engineering to enhance his/her knowledge and skills in the design, operation, and management of highway facilities.</td>
<td>Performance in preparing, presenting, and writing a design project and scientific paper.</td>
</tr>
</tbody>
</table>
VIII. Suggested Text:

IX. Alternative texts and references:


X. Websites:

American Association of State and Highway transportation Officials (AASHTO)  
www.aashto.org
American Public Transit Association  
www.apta.com
Transportation Research Board  
www.trb.org
U.S. Bureau of Transportation Statistics  
www.bts.gov
Automotive Technology  
www.automotive-technology.com
Institute of Transportation Engineers  
www.ite.org
U.S. Department of Transportation  
www.dot.gov
ITS Research Center, Texas A&M  
www.rce.tamu.edu
<table>
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<tr>
<th>1a. School or College</th>
<th>EN SOENG</th>
<th>1b. Division</th>
<th>1c. Department</th>
<th>CIVIL ENGINEERING</th>
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<td>CE</td>
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<td>A423</td>
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<td>5b. Contact Hours (Lecture + Lab) (2+2)</td>
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<td>6. Complete Course/Program Title</td>
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<td>CEU</td>
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<td>☐ Written Communication</td>
<td>☐ Quantitative Skills</td>
<td>☐ Humanities</td>
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<td>☐ Social Sciences</td>
<td>☐ Natural Sciences</td>
<td>☐ Integrative Capstone</td>
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<td>16. Course Description</td>
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<td>Traffic engineering studies and analysis, traffic flow theory, traffic control systems design, signalization, and capacity analyses.</td>
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<td>17c. Co-requisite(s) (concurrent enrollment required)</td>
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<td>17d. Other Restriction(s)</td>
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<td>☐ Level</td>
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<td>19. Justification for Action</td>
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<td>Elective course for Bachelor of Science in Civil Engineering, providing specialized practical training in transportation engineering. Course to be stacked with CE A623 Traffic Engineering.</td>
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</table>
Department: Civil Engineering

Course Prefix, Number, and Title: CE A423 Traffic Engineering

I. Course description
Traffic engineering studies and analysis, traffic flow theory, traffic control systems design, signalization, and capacity analyses.

II. Course Design

A. Fundamental intent: Designed as a technical elective for undergraduate students majoring in Civil Engineering. Course to be stacked with CE A623 Traffic Engineering.

B. Number of Semester Credits: Three (3)

C. Course Schedule: Standard fifteen (15) week semester.

D. Lectures Hours/week: Two (2)

E. Laboratory Hours/week: Two (2)

F. Total time of work expected outside of class: Five (5) hours per week.

G. Programs that require this course: Technical elective for Bachelor of Science in Civil Engineering.

H. Grading: A – F

I. Coordination with affected unites: Faculty list serve. Only the Department of Civil Engineering is affected.

J. Justification for Action: Elective course for the Bachelor of Science in Civil Engineering, providing specialized practical training in transportation engineering.

K. Prerequisite: CE A402.

L. Registration Restrictions: Undergraduate senior standing.
III. Course level justification
A. The course will involve application of engineering and scientific knowledge and skills typical of graduate engineering students.
B. The primary context of the course will be discussion and interaction among professional peers on advanced topics, with the basic assumption that students are accustomed to this level of interaction.
C. Lectures, multimedia presentations, and required reading will include advanced scientific and engineering topics that require for correct interpretation a background in math and science equivalent to that of Bachelors degree programs in engineering.
D. Students in the course analyze measured data and evaluate analytical methods to solve problems typical of advanced engineering and applied science research and practice.
E. Significant responsibility for independent critical thinking, efficient learning habits, and interpretation of technical information will fall on the student, at a level commonly associated with graduate education.

IV. Course Outline
A. Introduction to traffic engineering and its scope
   1. Components of the systems and their characteristics
   2. Roadways and their geometric characteristics
   3. Introduction to traffic control devices
   4. Intelligent transportation systems
B. Traffic engineering studies and analysis
   1. Statistical applications in traffic engineering
   2. Volume studies and characteristics
   3. Speed, travel, time and delay studies
   4. Parking studies and programs
C. Traffic control
   1. Traffic control for freeways
   2. Traffic control for rural highways
D. Intersection control and design
   1. Introduction to intersection control
   2. Basic principles of intersection signalization
   3. Fundamentals of signal design and timing
   4. Elements of intersection design
   5. Actuated signal control and detection
   6. Analysis of signalized intersections
   7. Applications of signalized intersection analysis
E. Capacity level and level of service analysis
   1. Freeways and multilane rural highways
   2. Signalized intersections

V. Instructional Goals and Student Outcomes
A. Instructional Goals. Instructor will enable the student to:
   1. have basic skills in the traffic engineering design and analysis of highway facilities,
   2. have skills for conducting traffic engineering data collection, and studies,
   3. understand the basics in traffic design and control,
   4. design a signalized intersection,
   5. understand the basics in capacity and Level of Service analysis,
   6. analyze and evaluate the capacity of a signalized intersection,
7. present his/her work as an engineer and communicate with others in a professional manner,
8. preserve, share, and analyze information in traffic engineering using the basic knowledge and skills attained during class and field work,
9. work as a team to achieve their goals efficiently and professionally,
10. consider the wider perspective and diversity of the engineering profession when dealing with the social, economic, and environmental aspects in traffic engineering.

B. Student Outcomes. Students who successfully complete this course will demonstrate knowledge and skills in the following areas:
1. visualize the traffic engineering in perspective to highway engineering,
2. integrate and interact with the prospective transportation professionals and agencies,
3. understand the importance of the interaction of the different components of traffic engineering components,
4. be able to deliver a project report that meets the objectives of the traffic design aspect under consideration,
5. realize the diminutions’ of the components of traffic systems,
6. be able to understand the basics in the design and analysis of traffic engineering systems,
7. have the ability to focus on further courses in the field of transportation engineering to enhance his/her knowledge and skills in the design, operation, and management of highway facilities.

VI. Course Activities
A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic examinations.
B. Students are assigned required reading and homework problems to analyze measured data and evaluate analytical solution methods.
C. Students will complete a design project in the field of Traffic Engineering within course time frame.
D. Students are required to perform experiments in the field, collect data, and analyze data in the field of Traffic Engineering.

VII. Course Evaluation. Methods of evaluation may include but are not limited to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualize the traffic engineering in perspective to highway engineering.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Integrate and interact with the prospective transportation professionals and agencies.</td>
<td>Performance in presentation of a design project.</td>
</tr>
<tr>
<td>Understand the importance of the interaction of the different components of traffic engineering components.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>Be able to deliver a project report that meets the objectives of the traffic design aspect under consideration.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>Realize the diminutions’ of the components of traffic systems.</td>
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</tr>
<tr>
<td>Be able to understand the basics in the design and analysis of traffic engineering systems.</td>
<td>Performance in presentation of a design project.</td>
</tr>
<tr>
<td>Have the ability to focus on further courses in the field of transportation engineering to enhance his/her knowledge and skills in the design, operation, and management of highway facilities.</td>
<td>Performance in preparing, presenting, and writing a design project.</td>
</tr>
</tbody>
</table>
VIII. Suggested Text:

IX. Alternative texts and references:


X. Websites:

- American Association of State and Highway Transportation Officials (AASHTO) [www.aashto.org](http://www.aashto.org)
- American Public Transit Association [www.apta.com](http://www.apta.com)
- Transportation Research Board [www.trb.org](http://www.trb.org)
- U.S. Bureau of Transportation Statistics [www.bts.gov](http://www.bts.gov)
- Automotive Technology [www.automotive-technology.com](http://www.automotive-technology.com)
- Institute of Transportation Engineers [www.ite.org](http://www.ite.org)
- U.S. Department of Transportation [www.dot.gov](http://www.dot.gov)
- ITS Research Center, Texas A&M [www.rce.tamu.edu](http://www.rce.tamu.edu)
## Curriculum Action Request
### University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>EN SOENGR</th>
<th>1b. Division</th>
<th>1c. Department</th>
<th>CIVIL ENGINEERING</th>
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<tbody>
<tr>
<td>2. Course Prefix</td>
<td>CE</td>
<td>3. Course Number</td>
<td>A624</td>
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<td>4. Previous Course Prefix &amp; Number</td>
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<td>5b. Contact Hours</td>
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<td>Abbreviated Title for Transcript (30 character)</td>
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<td>Professional Development</td>
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<td>Course Description</td>
<td>Other Restrictions</td>
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<td></td>
<td>Test Score Prerequisites</td>
<td>Co-requisites</td>
<td>Registration Restrictions</td>
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<td>with CE A424</td>
<td>Cross-Listed Coordination Signature</td>
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<td>13. List any programs or college requirements that require this course</td>
<td>Technical elective for Masters of Science in Civil Engineering.</td>
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<td>14. Coordinate with Affected Units:</td>
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<td>15. General Education Requirement</td>
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<td>Quantitative Skills</td>
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<td>16. Course Description</td>
<td>Analysis and design of highway and airport pavements, principles of theoretical and practical approaches for the design of flexible and rigid pavement structures. Methods for asphalt concrete mixture design and performance measures.</td>
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<td>17c. Co-requisite(s) (concurrent enrollment required)</td>
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<td>17d. Other Restriction(s)</td>
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<td>Major</td>
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<tr>
<td>19. Justification for Action</td>
<td>Elective course for Master in Science in Civil Engineering, providing specialized practical training in transportation engineering. Course to be stacked with CE A424 Pavement Design.</td>
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Department: Civil Engineering

Course Prefix, Number, and Title: CE A624 Pavement Design

I. Course description
Analysis and design of highway and airport pavements, principles of theoretical and practical approaches for the design of flexible and rigid pavement structures. Methods for asphalt concrete mixture design and performance measures.

II. Course Design

A. Fundamental intent: Designed as a technical elective for graduate students majoring in Civil Engineering. Course to be stacked with CE A424 Pavement Design.

B. Number of Semester Credits: Three (3)

C. Course Schedule: Standard fifteen (15) week semester.

D. Lectures Hours/week: Two (2)

E. Laboratory Hours/week: Two (2)

F. Total time of work expected outside of class: Five (5) hours per week.

G. Programs that require this course: Technical elective for Masters of Science in Civil Engineering.

H. Grading: A – F

I. Coordination with affected unites: Faculty list serve. Only the Department of Civil Engineering is affected.

J. Justification for Action: Elective course for the Masters in Science in Civil Engineering, providing specialized practical training in transportation engineering.

K. Prerequisite: Graduate level.

L. Registration Restrictions: Graduate standing.
III. Course level justification

A. The course will involve application of engineering and scientific knowledge and skills typical of graduate engineering students.
B. The primary context of the course will be discussion and interaction among professional peers on advanced topics, with the basic assumption that students are accustomed to this level of interaction.
C. Lectures, multimedia presentations, and required reading will include advanced scientific and engineering topics that require for correct interpretation a background in math and science equivalent to that of master’s degree programs in engineering.
D. Students in the course analyze measured data and evaluate analytical methods to solve problems typical of advanced engineering and applied science research and practice.
E. Significant responsibility for independent critical thinking, efficient learning habits, and interpretation of technical information will fall on the student, at a level commonly associated with graduate education.

IV. Course Outline

A. Introduction
   1. Introduction to Pavement structures.
   2. Pavements types.
   3. Design factors.
   4. Pavements (airports & highways).
B. Stresses and strains in flexible pavements
   1. Homogeneous mass.
   2. Layered systems.
   3. Viscoelesfic solutions.
C. Stresses and strains in rigid pavements
   1. Stresses due to curling.
   2. Stresses and deflections due to loading.
   3. Stresses due to friction.
   4. Design of dowels and joints.
D. Traffic loading and volume.
   1. Design procedures.
   2. Equivalent single-wheel load.
   3. Equivalent single-axle factor.
   4. Traffic analysis.
E. Material characterization
   1. Resilient modulus.
   2. Fatigue characteristic.
F. Pavement performance
G. Reliability
H. Flexible pavement design
   1. AASHTO design method
I. Rigid pavement design
   1. PCA method
J. Asphaltic Concrete Mixture Design
   1. AASHTO Mix Design
   2. Superpave Mix Design
V. Instructional Goals and Student Outcomes
   A. Instructional Goals. Instructor will enable the student to:
      1. have basic skills in pavement design and analysis for highways and airports,
      2. have skills for conducting pavement related testing and studies,
      3. understand the basics in theoretical design of pavement structures,
      4. understand the practical aspects pavement design,
      5. analyze and evaluate pavement design parameters,
      6. analyze and evaluate pavement materials and construction methods,
      7. present his/her work as an engineer and communicate with others in a professional manner,
      8. preserve, share, and analyze information for pavement structures using the basic knowledge and skills attained during class and field work,
      9. work as a team to achieve their goals efficiently and professionally,
     10. consider the wider perspective and diversity of the engineering profession when dealing with the social, economic, and environmental aspects in pavement design.

   B. Student Outcomes. Students who successfully complete this course will demonstrate knowledge and skills in the following areas:
      1. visualization of the pavement design in perspective to highway engineering,
      2. integration and interaction with the prospective transportation professionals and agencies,
      3. understanding the importance of the interaction of the different components of highway engineering components,
      4. delivering a project report that meets the objectives of the pavement materials and pavement design aspects under consideration,
      5. realization of the diminutions and aspects of pavement structures,
      6. understanding the basics in the design and analysis of pavement structures,
      7. focusing on further courses in the field of transportation engineering to enhance his/her knowledge and skills in the design, operation, and management of highway facilities.

VI. Course Activities
   A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic examinations.
   B. Students are assigned required reading and homework problems to analyze measured data and evaluate analytical solution methods.
   C. Students will complete a scientific paper and design project in the field of pavement structures and materials within the time frame of the course.
   D. Students are required to perform experiments in the lab, collect data, and analyze data.
VII. Course Evaluation. Methods of evaluation may include but are not limited to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>visualization of the pavement design in perspective to highway engineering.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>integration and interaction with the prospective transportation professionals and agencies.</td>
<td>Performance in the lab, presentation of scientific paper and in a design project.</td>
</tr>
<tr>
<td>understanding the importance of the interaction of the different components of highway engineering components.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>delivering a project report that meets the objectives of the pavement materials and pavement design aspects under consideration.</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>realization of the diminutions and aspects of pavement structures,</td>
<td>Performance in the final exam, quizzes, field projects, term design project, and homework assignments.</td>
</tr>
<tr>
<td>understanding the basics in the design and analysis of pavement structures,</td>
<td>Performance in the final exam, quizzes, field projects, term design project, and homework assignments.</td>
</tr>
<tr>
<td>focusing on further courses in the field of transportation engineering to enhance his/her knowledge and skills in the design.</td>
<td>Performance in preparing, presenting, writing a design project and scientific paper.</td>
</tr>
</tbody>
</table>

VIII. Suggested Text:

IX. Alternative texts and references:


(2003), *SP-1 Performance Graded Asphalt Binder Specification and Testing Superpave Mix Design,*
3rd edition, Asphalt Institute.

**Websites:**

American Association of State and Highway transportation Officials (AASHTO)  www.aashto.org
Transportation Research Board  www.trb.org
U.S. Bureau of Transportation Statistics  www.bts.gov
Automotive Technology  www.automotive-technology.com
U.S. Department of Transportation  www.dot.gov
ITS Research Center, Texas A&M  www.rce.tamu.edu
Asphalt Institute  www.asphaltinstitute.org
### Course Information

**School/College:** EN SOENGR  
**Division:**  
**Department:** CIVIL ENGINEERING

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEU</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE</td>
<td>A424</td>
<td></td>
<td>3.0 CR</td>
<td>(2+2)</td>
</tr>
</tbody>
</table>

**Complete Course/Program Title:** Pavement Design

**Abbreviated Title for Transcript (30 character):** Pavement Design

**Type of Course:** Academic

**Type of Action:** Add

**Course Description:** Analysis and design of highway and airport pavements, principles of theoretical and practical approaches for the design of flexible and rigid pavement structures. Methods for asphalt concrete mixture design and performance measures.

**Course Prerequisites:** CE A402.

**Other Restrictions:** Undergraduate senior standing.

**Mark if course has fees:**

**Justification for Action:** Elective course for Bachelor in Science in Civil Engineering, providing specialized practical training in transportation engineering. Course to be stacked with CE A624 Pavement Design.
Department: Civil Engineering

Course Prefix, Number, and Title: CE A424 Pavement Design

I. Course description
Analysis and design of highway and airport pavements, principles of theoretical and practical approaches for the design of flexible and rigid pavement structures. Methods for asphalt concrete mixture design and performance measures.

II. Course Design

A. Fundamental intent: Designed as a technical elective for undergraduate students majoring in Civil Engineering. Course to be stacked with CE A624 Pavement Design.

B. Number of Semester Credits: Three (3)

C. Course Schedule: Standard fifteen (15) week semester.

D. Lectures Hours/week: Two (2)

E. Laboratory Hours/week: Two (2)

F. Total time of work expected outside of class: Five (5) hours per week.

G. Programs that require this course: Technical elective for Bachelor of Science in Civil Engineering.

H. Grading: A – F

I. Coordination with affected unites: Faculty list serve. Only the Department of Civil Engineering is affected.

J. Justification for Action: Elective course for the Bachelor in Science in Civil Engineering, providing specialized practical training in transportation engineering.

K. Prerequisite: CE A402.

L. Registration Restrictions: Undergraduate senior standing.
III. Course level justification

A. The course will involve application of engineering and scientific knowledge and skills typical of graduate engineering students.
B. The primary context of the course will be discussion and interaction among professional peers on advanced topics, with the basic assumption that students are accustomed to this level of interaction.
C. Lectures, multimedia presentations, and required reading will include advanced scientific and engineering topics that require for correct interpretation a background in math and science equivalent to that of bachelor degree programs in engineering.
D. Students in the course analyze measured data and evaluate analytical methods to solve problems typical of advanced engineering practice.
E. Significant responsibility for independent critical thinking, efficient learning habits, and interpretation of technical information will fall on the student, at a level commonly associated with graduate education.

IV. Course Outline

A. Introduction
   1. Introduction to Pavement structures.
   2. Pavements types.
   3. Design factors.
   4. Pavements (airports& highways).
B. Stresses and strains in flexible pavements
   1. Homogeneous mass.
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C. Stresses and strains in rigid pavements
   1. Stresses due to curling
   2. Stresses and deflections due to loading.
   3. Stresses due to friction.
   4. Design of dowels and joints.
D. Traffic loading and volume.
   1. Design procedures.
   2. Equivalent single-wheel load.
   3. Equivalent single-axle factor.
   4. Traffic analysis.
E. Material characterization
   1. Resilient modulus.
   2. Fatigue characteristic.
F. Pavement performance
G. Reliability
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   1. AASHTO design method
I. Rigid pavement design
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   1. AASHTO Mix Design
   2. Superpave Mix Design
V. Instructional Goals and Student Outcomes
   A. Instructional Goals. Instructor will enable the student to:
      1. have basic skills in pavement design and analysis for highways and airports,
      2. have skills for conducting pavement related testing and studies,
      3. understand the basics in theoretical design of pavement structures,
      4. understand the practical aspects pavement design,
      5. analyze and evaluate pavement design parameters,
      6. analyze and evaluate pavement materials and construction methods,
      7. present his/her work as an engineer and communicate with others in a professional manner,
      8. preserve, share, and analyze information for pavement structures using the basic knowledge
         and skills attained during class and field work,
      9. work as a team to achieve their goals efficiently and professionally,
     10. consider the wider perspective and diversity of the engineering profession when dealing with
         the social, economic, and environmental aspects in pavement design.

   B. Student Outcomes. Students who successfully complete this course will demonstrate knowledge
      and skills in the following areas:
      1. visualization of the pavement design in perspective to highway engineering,
      2. integration and interaction with the prospective transportation professionals and agencies,
      3. understanding the importance of the interaction of the different components of highway
         engineering components,
      4. delivering a project report that meets the objectives of the pavement materials and pavement
         design aspects under consideration,
      5. realization of the diminutions and aspects of pavement structures,
      6. understanding the basics in the design and analysis of pavement structures,
      7. focusing on further courses in the field of transportation engineering to enhance his/her
         knowledge and skills in the design, operation, and management of highway facilities.

VI. Course Activities
   A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic
      examinations.
   B. Students are assigned required reading and homework problems to analyze measured data and
      evaluate analytical solution methods.
   C. Students will complete a design project in the field of pavement structure within the time frame of
      the course.
   D. Students are required to perform experiments in the lab, collect data, and analyze data.
VII. Course Evaluation. Methods of evaluation may include but are not limited to:

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<th>Outcomes</th>
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<tbody>
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<td>Performance in the exam, quizzes, and homework assignments.</td>
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<tr>
<td>integration and interaction with the prospective transportation professionals and agencies</td>
<td>Performance in the lab, presentation of a design project.</td>
</tr>
<tr>
<td>understanding the importance of the interaction of the different components of highway engineering components</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>delivering a project report that meets the objectives of the pavement materials and pavement design aspects under consideration</td>
<td>Performance in the exam, quizzes, field projects, and homework assignments.</td>
</tr>
<tr>
<td>realization of the diminutions and aspects of pavement structures</td>
<td>Performance in the final exam, quizzes, field projects, term design project, and homework assignments.</td>
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<tr>
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VIII. Suggested Text:

IX. Alternative texts and references:


3rd edition, Asphalt Institute.

Websites:

American Association of State and Highway transportation Officials (AASHTO) www.aashto.org
Transportation Research Board www.trb.org
U.S. Bureau of Transportation Statistics www.bts.gov
Automotive Technology www.automotive-technology.com
U.S. Department of Transportation www.dot.gov
ITS Research Center, Texas A&M www.rce.tamu.edu
Asphalt Institute www.asphaltinstitute.org
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<th>1c. Department</th>
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<td>Professional Development</td>
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<td>7. Type of Action</td>
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<td>To: 99/9999</td>
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<td>14. Course Description</td>
<td>Geometrical and structural design, construction, and maintenance of highway facilities and associated economic, social, and environmental consequences. The stacked course CE A425 designed as a technical elective for undergraduate students pursuing a Bachelor of Science in Civil Engineering.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17a. Course Prerequisite(s) (list prefix and number)</td>
<td>CE A402 with minimum grade of &quot;C&quot;.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17b. Test Score(s)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17c. Co-requisite(s) (concurrent enrollment required)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17d. Other Restriction(s)</td>
<td>College</td>
<td>Major</td>
<td>Class</td>
<td>Level</td>
</tr>
<tr>
<td>17e. Registration Restriction(s) (non-codable)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Mark if course has fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Justification for Action</td>
<td>New elective course for the Masters of Science in Civil Engineering degree. Course to be stacked with CE A425 Highway Engineering. The stacked course CE A425 designed as a technical elective for undergraduate students pursuing a Bachelor of Science in Civil Engineering.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Department: Civil Engineering

Course Prefix, Number, and Title: CE A625 Highway Engineering

I. Course description
   Geometrical and structural design, construction, and maintenance of highway facilities and associated economic, social, and environmental consequences. The stacked course CE A425 designed as a technical elective for undergraduate students pursuing a Bachelor of Science in Civil Engineering.

II. Course Design
   A. Fundamental Intent: Designed as an elective course for graduate students majoring in Civil Engineering.
   B. Number of Semester Credits: Three (3).
   C. Course Schedule: Standard fifteen (15) week semester.
   D. Lectures Hours/week: Two (2)
   E. Laboratory Hours/week: Three (3)
   F. Total time of work expected outside of class: Six (6) hours per week.
   G. Programs that require this course: Elective course for Masters of Science in Civil Engineering.
   H. Grading: A – F
   I. Fee: Yes
   J. Coordination with affected units: UAA list serve
   K. Justification for action: New elective course for the Masters of Science in Civil Engineering degree.
   L. Prerequisite: CE A402 with minimum grade of “C”.
   M. Registration Restrictions: Masters of Science in Civil Engineering degree students.
III. Course level justification
This graduate level elective course requires specialized prerequisite knowledge and skills and the ability to synthesize this knowledge to plan and design highway components at a level equivalent to professional practice. The student should have the ability to conduct research in the subject area and produce a draft research paper.

IV. Course Outline
A. Highway surveys and location
   1. Techniques for highway location
   2. Principles of highway location
B. Geometric design of highway facilities
   1. Highway functional classification
   2. Factors influencing highway location
   3. Highway design standards
   4. Cross-sectional elements
   5. Design of alignment – vertical alignment
   6. Horizontal alignment
   7. Special facilities for heavy vehicle/grades
   8. Parking facilities
C. Local urban streets
   1. General design considerations:
      a. Design traffic volumes
      b. Design speed
      c. Sight distance
      d. Grades
      e. Alignment
D. Urban arterials
   1. General design considerations:
      a. Design speed
      b. Design traffic volumes
      c. Sight distance
      d. Grades
      e. Alignment
E. Freeways
   1. General design considerations
      a. Design speed
      b. Design traffic volumes
      c. Levels of service
      d. Pavement and shoulders
F. Highway Drainage
   1. Surface drainage
   2. Highway drainage structures
   3. Subsurface drainage
G. Soil engineering for highway design
   1. Classification of soils for highway use
   2. Soil survey for highway construction
   3. Soil compaction
   4. Tests for soil for pavement design
H. Bituminous mixtures
   1. Bituminous materials
   2. Properties of asphalt mixtures
   3. Mix design methods and tests
I. Flexible pavement design
   1. Components of flexible pavements
   2. Design variables
   3. Thickness design of flexible pavements
J. Rigid pavement design
   1. Materials used in rigid pavement
   2. Joints in concrete pavements
   3. Pumping of rigid pavements
   4. Stresses in rigid pavements
   5. Thickness design of rigid pavements
K. Introduction to pavement management
   1. Highway rehabilitation
   2. Methods for measuring roadway condition
   3. Pavement rehabilitation

V. Instructional Goals and Student Outcomes
A. Instructional Goals. The instructor will enable students:
   1. with basic skills in the highway engineering and design,
   2. with skills for analysis of route survey and location,
   3. to understand the basics in the evaluation route alternatives,
   4. to understand the basics in highway design criteria and standards,
   5. to understand the basics in material properties, specification, and analysis which relate to pavement structures,
   6. to design flexible and rigid pavements and understand the criteria for design,
   7. to understand the basics in pavement management,
   8. to present his/her work as an engineer and communicate with others in a professional manner,
   9. to preserve, share, analyze, and conduct a research in highway engineering using the basic knowledge and skills attained during class and field work,
   10. to work as a team to achieve their goals efficiently and professionally,
   11. to consider the wider perspective and diversity of the engineering profession when dealing with the social, economic, and environmental aspects in traffic engineering.

B. Student Outcomes. Students who successfully complete this course will be able to:
   1. comprehend and determine parameters related to selection of highway routes,
   2. recognize and apply the techniques for evaluation of highway routes,
   3. identify and apply highway design standards,
   4. discuss and analyze highway design case studies,
   5. analyze properties of construction materials related to transportation facilities,
   6. design highway pavement structures,
   7. prepare and write a design project report within a team and conduct a research in the subject area,
   8. integrate the social, economic, and environmental aspects in a design project report,

VI. Course activities
A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic examinations.
B. Students are assigned required reading and homework problems to analyze measured data and evaluate analytical solution methods.
C. Students will complete a scientific paper and design project in any field related of highway geometric design.
D. Students are required to perform experiments in the field, collect data, and analyze data.
**Course Evaluation:** Methods of evaluation may include but are not limited to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehend and determine parameters related to the selection of highway route.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Recognize and review the techniques in the evaluation of highway routes.</td>
<td>Performance in presentation of a design project report and in a design project.</td>
</tr>
<tr>
<td>Identify and review highway design parameters and standards.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Discuss and analyze cases of highway design.</td>
<td>Performance in presentation design project report.</td>
</tr>
<tr>
<td>Comprehend and discuss properties of construction materials related to transportation facilities.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Analyze and design highway pavement structures.</td>
<td>Performance in presentation a design project report and in a design project.</td>
</tr>
<tr>
<td>prepare and write a design project report within a team and conduct a research in the subject area.</td>
<td>Performance in preparing, presenting and writing a design project report and scientific paper.</td>
</tr>
<tr>
<td>Integrate the social, economic, and environmental aspects in the design.</td>
<td>Performance in preparing, presenting, and writing a design project and scientific paper.</td>
</tr>
</tbody>
</table>

VII. **Suggested Text:**


VIII. **Alternative texts and references:**


**IX. Web References**

American Association of State and Highway transportation Officials (AASHTO)  
[www.aashto.org](http://www.aashto.org)

American Public Transit Association  
[www.apta.com](http://www.apta.com)

Transportation Research Board  
[www.trb.org](http://www.trb.org)

U.S. Bureau of Transportation Statistics  
[www.bts.gov](http://www.bts.gov)

Automotive Technology (Projects …etc)  
[www.automotive-technology.com](http://www.automotive-technology.com)

Institute of Transportation Engineers  
[www.ite.org](http://www.ite.org)

U.S. Department of Transportation  
[www.dot.gov](http://www.dot.gov)

ITS Research Center, Texas A&M  
[www.rce.tamu.edu](http://www.rce.tamu.edu)
<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>EN SOENGR</th>
<th>1b. Division</th>
<th>1c. Department</th>
<th>CIVIL ENGINEERING</th>
</tr>
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<tbody>
<tr>
<td>2. Course Prefix</td>
<td>CE</td>
<td>3. Course Number</td>
<td>A425</td>
<td></td>
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<td>4. Previous Course Prefix &amp; Number</td>
<td>CE A404</td>
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<td>5a. Credits/CEU</td>
<td>3.0 CR</td>
<td>5b. Contact Hours (Lecture + Lab)</td>
<td>(2+3)</td>
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<td>6. Complete Course/Program Title</td>
<td>Highway Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Abbreviated Title for Transcript (30 character)</td>
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<td></td>
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<td>7. Type of Course</td>
<td>☑ Academic</td>
<td>☐ Non-credit</td>
<td>☐ CEU</td>
<td>☐ Professional Development</td>
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<td>8. Type of Action</td>
<td>☑ Course</td>
<td>☐ Program</td>
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<td>☑ Add</td>
<td>☑ Prefix</td>
<td>☑ Course Number</td>
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<td></td>
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<td>☑ Change</td>
<td>☑ Credits</td>
<td>☑ Contact Hours</td>
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</tr>
<tr>
<td>☑ Title</td>
<td>☑ Grade Basis</td>
<td>☑ Repeat Status</td>
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<tr>
<td>☑ Course Description</td>
<td>☑ Course Prerequisites</td>
<td>☑ Cross-Listed/Stacked</td>
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</tr>
<tr>
<td>☑ Test Score Prerequisites</td>
<td>☑ Co-requisites</td>
<td>☑ Registration Restrictions</td>
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<td></td>
</tr>
<tr>
<td>☑ Other Restrictions</td>
<td>☑ Class</td>
<td>☑ Level</td>
<td></td>
<td></td>
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<tr>
<td>☑ College</td>
<td>☑ Major</td>
<td>☑ Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Repeat Status No</td>
<td>☑ # of Repeats</td>
<td>☑ Max Credits</td>
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<td>10. Grading Basis</td>
<td>☑ A-F</td>
<td>☐ P/NP</td>
<td>☐ NG</td>
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<td>11. Implementation Date</td>
<td>☑ semester/year</td>
<td>From: Spring/2009</td>
<td>To: 99/9999</td>
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<td>12. ☑ Cross Listed with</td>
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<tr>
<td>☑ Stacked</td>
<td>with CE A625</td>
<td>Cross-Listed Coordination Signature</td>
<td></td>
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</tr>
<tr>
<td>13. List any programs or college requirements that require this course</td>
<td>Technical elective for Bachelor of Science in Civil Engineering.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Coordinate with Affected Units</td>
<td>UAA list serve</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department, School, or College</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiator Signature</td>
<td>Date</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. ☐ General Education Requirement</td>
<td>☐ Oral Communication</td>
<td>☐ Written Communication</td>
<td>☐ Quantitative Skills</td>
<td>☐ Humanities</td>
</tr>
<tr>
<td>☐ Fine Arts</td>
<td>☐ Social Sciences</td>
<td>☐ Natural Sciences</td>
<td>☐ Integrative Capstone</td>
<td></td>
</tr>
<tr>
<td>16. Course Description</td>
<td>Geometrical and structural design, construction, and maintenance of highway facilities and associated economic, social, and environmental consequences. The stacked course CE A625 designed as a technical elective for graduate students pursuing a Master of Science in Civil Engineering.</td>
<td></td>
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<tr>
<td>17a. Course Prerequisite(s) (list prefix and number)</td>
<td>CE A402 with a minimum grade of &quot;C&quot;.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17b. Test Score(s)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17c. Co-requisite(s) (concurrent enrollment required)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17d. Other Restriction(s)</td>
<td>☐ College</td>
<td>☐ Major</td>
<td>☐ Class</td>
<td>☐ Level</td>
</tr>
<tr>
<td>17e. Registration Restriction(s) (non-codable)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. ☑ Mark if course has fees</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Justification for Action</td>
<td>Elective course for the Bachelor of Science in Civil Engineering degree. Course description updated and refined. Goals and outcomes updated and refined. Course is to be stacked with CE A625 Highway Engineering.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Department: Civil Engineering

Course Prefix, Number, and Title: CE A425 Highway Engineering

I. Course description
   Geometrical and structural design, construction, and maintenance of highway facilities and associated economic, social, and environmental consequences. The stacked course CE A625 designed as a technical elective for graduate students pursuing a Master of Science in Civil Engineering.

II. Course Design
   A. Fundamental Intent: Designed as a technical elective for undergraduate seniors majoring in Civil Engineering.

   B. Number of Semester Credits: Three (3).

   C. Course Schedule: Standard fifteen (15) week semester.

   D. Lectures Hours/week: Two (2)

   E. Laboratory Hours/week: Three (3)

   F. Total time of work expected outside of class: Six (6) hours per week.

   G. Programs that require this course: Technical elective for Bachelor of Science in Civil Engineering.

   H. Grading: A – F

   I. Fee: Yes

   J. Coordination with affected units: UAA list serve

   K. Justification for action: Elective course for the Bachelor of Science in Civil Engineering degree. Course description updated and refined. Goals and outcomes updated and refined.

   L. Prerequisite: CE A402 with minimum grade of “C”.

   M. Registration Restrictions: N/A.
III. Course level justification
This senior level technical elective requires specialized prerequisite knowledge and skills and the ability to synthesize this knowledge to plan and design highway components at a level equivalent to professional practice.

IV. Course Outline
A. Highway surveys and location
   1. Techniques for highway location
   2. Principles of highway location
B. Geometric design of highway facilities
   1. Highway functional classification
   2. Factors influencing highway location
   3. Highway design standards
   4. Cross-sectional elements
   5. Design of alignment – vertical alignment
   6. Horizontal alignment
   7. Special facilities for heavy vehicle/grades
   8. Parking facilities
C. Local urban streets
   1. General design considerations:
      a. Design traffic volumes
      b. Design speed
      c. Sight distance
      d. Grades
      e. Alignment
D. Urban arterials
   1. General design considerations:
      a. Design speed
      b. Design traffic volumes
      c. Sight distance
      d. Grades
      e. Alignment
E. Freeways
   1. General design considerations
      a. Design speed
      b. Design traffic volumes
      c. Levels of service
      d. Pavement and shoulders
F. Highway Drainage
   1. Surface drainage
   2. Highway drainage structures
   3. Subsurface drainage
G. Soil engineering for highway design
   1. Classification of soils for highway use
   2. Soil survey for highway construction
   3. Soil compaction
   4. Tests for soil for pavement design
H. Bituminous mixtures
   1. Bituminous materials
   2. Properties of asphalt mixtures
   3. Mix design methods and tests
I. Flexible pavement design
   1. Components of flexible pavements
   2. Design variables
   3. Thickness design of flexible pavements
J. Rigid pavement design
   1. Materials used in rigid pavement
   2. Joints in concrete pavements
   3. Pumping of rigid pavements
   4. Stresses in rigid pavements
   5. Thickness design of rigid pavements
K. Introduction to pavement management
   1. Highway rehabilitation
   2. Methods for measuring roadway condition
   3. Pavement rehabilitation

V. Instructional Goals and Student Outcomes
A. Instructional Goals. The instructor will enable students:
   1. with basic skills in the highway engineering and design,
   2. with skills for analysis of route survey and location,
   3. to understand the basics in the evaluation route alternatives,
   4. to understand the basics in highway design criteria and standards,
   5. to understand the basics in material properties, specification, and analysis which relate to pavement structures,
   6. to design flexible and rigid pavements and understand the criteria for design,
   7. to understand the basics in pavement management,
   8. to present his/her work as an engineer and communicate with others in a professional manner,
   9. to preserve, share, and analyze information in highway engineering using the basic knowledge and skills attained during class and field work,
10. to work as a team to achieve their goals efficiently and professionally,
11. to consider the wider perspective and diversity of the engineering profession when dealing with the social, economic, and environmental aspects in traffic engineering.

B. Student Outcomes. Students who successfully complete this course will be able to:
   1. comprehend and determine parameters related to selection of highway routes,
   2. recognize and apply the techniques for evaluation of highway routes,
   3. identify and apply highway design standards,
   4. discuss and analyze highway design case studies,
   5. analyze properties of construction materials related to transportation facilities,
   6. design highway pavement structures,
   7. prepare and write a design project report within a team,
   8. integrate the social, economic, and environmental aspects in a design project report,

VI. Course activities
A. Class meetings consist of lectures, multimedia presentations, discussions, and periodic examinations.
B. Students are assigned required reading and homework problems to analyze measured data and evaluate analytical solution methods.
C. Students will complete a design project in the field of highway geometrical design.
D. Students are required to perform experiments in the field, collect data, and analyze data.
Course Evaluation: Methods of evaluation may include but are not limited to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehend and determine parameters related to the selection of highway route.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Recognize and review the techniques in the evaluation of highway routes.</td>
<td>Performance in presentation of a design project report.</td>
</tr>
<tr>
<td>Identify and review highway design parameters and standards.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Discuss and analyze cases of highway design.</td>
<td>Performance in presentation design project report.</td>
</tr>
<tr>
<td>Comprehend and discuss properties of construction materials related to transportation facilities.</td>
<td>Performance in the exam, quizzes, and homework assignments.</td>
</tr>
<tr>
<td>Analyze and design highway pavement structures.</td>
<td>Performance in presentation a design project report.</td>
</tr>
<tr>
<td>Prepare and write a design project with a team.</td>
<td>Performance in preparing, presenting and writing a design project report.</td>
</tr>
<tr>
<td>Integrate the social, economic, and environmental aspects in the design.</td>
<td>Performance in the final exam and term design project report.</td>
</tr>
</tbody>
</table>

VII. Suggested Text:


VIII. Alternative texts and references:


**IX. Web References**

American Association of State and Highway transportation Officials (AASHTO)  
[www.aashto.org](http://www.aashto.org)

American Public Transit Association  
[www.apta.com](http://www.apta.com)

Transportation Research Board  
[www.trb.org](http://www.trb.org)

U.S. Bureau of Transportation Statistics  
[www.bts.gov](http://www.bts.gov)

Automotive Technology (Projects …etc)  
[www.automotive-technology.com](http://www.automotive-technology.com)

Institute of Transportation Engineers  
[www.ite.org](http://www.ite.org)

U.S. Department of Transportation  
[www.dot.gov](http://www.dot.gov)

ITS Research Center, Texas A&M  
[www.rce.tamu.edu](http://www.rce.tamu.edu)
1a. School or College  
CT CTC

1b. Division  
ADVE Division of Career Voc Ed

1c. Department  
Career and Technical Education

2. Course Prefix  
NA

3. Course Number  
NA

4. Previous Course Prefix & Number  
NA

5a. Credits/CEU  
NA

5b. Contact Hours  
(Lecture + Lab) (NA+)

6. Complete Course/Program Title  
Master of Science, Career and Technical Education  
MSCTE

Abbreviated Title for Transcript (30 character): MSCTE

7. Type of Course  
☐ Academic  ☐ Non-credit  ☐ CEU  ☐ Professional Development

8. Type of Action  
☐ Add  ☑ Change  ☐ Delete

☐ Prefix  ☐ Credits  ☐ Title  ☐ Grading Basis  ☐ Course Description  ☐ Test Score Prerequisites  ☐ Other Restrictions  ☐ Class  ☐ Level  ☐ College  ☐ Major  ☐ Other Catalog copy

☐ Course Number  ☐ Contact Hours  ☐ Repeat Status  ☐ Cross-Listed/Stacked  ☐ Course Prerequisites  ☐ Co-requisites  ☐ Registration Restrictions

9. Repeat Status  # of Repeats  Max Credits

10. Grading Basis  ☐ A-F  ☐ P/NP  ☐ NG

11. Implementation Date  semester/year  
From: Fall/2009  To: 9999

12. ☐ Cross Listed with  NA  ☐ Stacked

☐ Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course  
NA

14. Coordinate with Affected Units:  
College of Education, UAA listserve  
Department, School, or College  
Initiator Signature  Date

15. ☐ General Education Requirement  
☐ Oral Communication  ☐ Written Communication  ☐ Quantitative Skills  ☐ Humanities  
☐ Fine Arts  ☐ Social Sciences  ☐ Natural Sciences  ☐ Integrative Capstone

16. Course Description  
See attached catalog copy.

17a. Course Prerequisite(s) (list prefix and number)  
NA

17b. Test Score(s)  
NA

17c. Co-requisite(s) (concurrent enrollment required)  
NA

17d. Other Restriction(s)  
☐ College  ☐ Major  ☐ Class  ☐ Level  
☐ Other Catalog copy

17e. Registration Restriction(s) (non-codable)  
NA

18. ☐ Mark if course has fees  NONE

19. Justification for Action  
Updates to the program are based on prefix and course changes in the College of Education. New courses will add to the quality of the program.

Initiator (faculty only)  Date

Deanna Schultz
Initiator (TYPE NAME)  Date

Approved  Disapproved:
Dean/Director of School/College  Date

Approved  Disapproved:
Department Chairperson  Date

Approved  Disapproved:
Academic Board Chairperson  Date

Approved  Disapproved:
Provost or Designee  Date

Curriculum Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study
The Master of Science in Career and Technical Education program at UAA provides instruction for teachers, administrators, industry trainers, and workforce development professionals specializing in career and technical education at the secondary and postsecondary level. Face-to-face and distance delivery options meet the learning needs of students while making instruction available statewide. Internships are available for students interested in updating their skills in an aspect of industry. Each student’s program is jointly designed by the student and a faculty adviser.

Upon completion the graduate will be able to:
- Defend a philosophy of career and technical education using literature and personal experience.
- Facilitate discussions on and advocate for or argue against career and technical education.
- Design and implement curriculum using methodology that meets the needs of diverse learners.
- Develop, organize, and critically analyze research for a specific audience.
- Apply leadership and management theory through research and practice in organizations.
- Incorporate technology to facilitate learning.

ADMISSION REQUIREMENTS
1. See the beginning of this chapter for Admission Requirements for Master’s Degrees.
2. Complete a writing exercise.
3. Participate in a program interview with faculty adviser.

GRADUATION REQUIREMENTS
1. See the beginning of this chapter for University Requirements for Master’s Degrees.
2. Complete 36 credits of approved course work. (Up to 9 credits may be at the 400 level.)
3. Complete, present, and obtain approval from graduate committee for individual research project or thesis.
4. Pass an oral or written examination based on the core program of study.

PROGRAM REQUIREMENTS
1. Develop an Official Graduate Studies Plan with faculty adviser and obtain approval before completion of more than 9 credits of course work.
2. Complete the Career and Technical Education core courses (12 credits):
   CTE A611 Historical and Philosophical Foundations of Career and Technical Education 3*
   CTE A633 Current Issues in Career and Technical Education 3
CTE A643  Teaching in Career and Technical Education  3
CTE A655  Curriculum and Assessment in Career and Technical Education

*If credit was earned for Historical and Philosophical Foundations of Career and Technical Education CTE A411, students must substitute a three credit, CTE 600-level course approved by the adviser for CTE A611.

3. Complete a component in human resources and leadership using one of the following courses (3 credits):

   BA A632  Organizational Behavior and Human Resource Management (3)
   EDL A637  Educational Leadership and Organizational Behavior (3)
   PADM A610  Organizational Theory and Behavior (3)
   Other human resources/leadership class with approval by faculty adviser (3)

4. Complete a technology education component using one of the following courses. (3 credits)

   EDET A637  Design of e-Learning (3)
   EDET A638  Facilitation of Learning with Technology (3)
   Other technology course with approval by faculty adviser (3)

5. Complete the following research courses.  (9 credits)

   EDRS A660  Fundamentals of Research in Education 2
   EDRS A664  Developing and Writing Literature Reviews 2
   Other research course approved by faculty adviser 2

   CTE A698  Individual Research (1-6) 3
   or
   CTE A699  Thesis (1-6)

6. Complete 9 credits of electives jointly selected with the graduate adviser. Electives may be in a technical area. 9

A total of 36 credits is required for the degree.
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<tr>
<td>1a. School or College</td>
<td>1b. Division</td>
<td>1c. Department</td>
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<tr>
<td>CT CTC</td>
<td>ADVE Division of Career Voc Ed</td>
<td>CTE</td>
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<td>2. Course Prefix</td>
<td>3. Course Number</td>
<td>4. Previous Course Prefix &amp; Number</td>
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<td>5b. Contact Hours (Lecture + Lab)</td>
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<tr>
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<td>6. Complete Course/Program Title</td>
<td>Teaching in Career and Technical Education</td>
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<tr>
<td>7. Type of Course</td>
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<td>9. Repeat Status No</td>
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<tr>
<td>10. Grading Basis</td>
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<td></td>
<td>[ ] A-F</td>
<td>[ ] P/NP</td>
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<tr>
<td>11. Implementation Date</td>
<td>semester/year</td>
<td>From:</td>
<td>To:</td>
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<td>Fall/2009</td>
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<td>13. List any programs or college requirements that require this course</td>
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<tr>
<td>14. Coordinate with Affected Units:</td>
<td>College of Education, Listserv Department, School, or College</td>
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<tr>
<td>15. General Education Requirement</td>
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<td>[ ] Oral Communication</td>
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<td>[ ] Quantitative Skills</td>
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<td>[ ] Fine Arts</td>
<td>[ ] Social Sciences</td>
<td>[ ] Natural Sciences</td>
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<tbody>
<tr>
<td>16. Course Description</td>
<td>Explores teaching strategies, applied research regarding learning, and concept development in Career and Technical Education (CTE). Evaluates content and materials. Examines teaching and learning to facilitate application in the classroom or training situation. Provides fundamentals of standards-based curriculum design and assessment for CTE.</td>
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<tbody>
<tr>
<td>17a. Course Prerequisite(s)</td>
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<td>N/A</td>
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<td>17b. Test Score(s)</td>
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<td>17c. Co-requisite(s) (concurrent enrollment required)</td>
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<td>N/A</td>
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<td>17d. Other Restriction(s)</td>
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<td></td>
<td>College</td>
<td>Major</td>
<td>Class</td>
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<td>17e. Registration Restriction(s) (non-codable)</td>
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<td>Graduate standing</td>
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<tbody>
<tr>
<td>18. Mark if course has fees</td>
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<tr>
<td>19. Justification for Action</td>
<td></td>
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<tr>
<td></td>
<td>In coordination with College of Education this is a new course to cover content methods to be used with a general methods course in the MAT. This course will be combined with Curriculum and Assessment in Career and Technical Education for the MSCTE.</td>
</tr>
</tbody>
</table>
I. **Course Description:**

Explores teaching strategies, applied research regarding learning, and concept development in Career and Technical Education (CTE). Evaluates content and materials. Examines teaching and learning to facilitate application in the classroom or training situation. Provides fundamentals of standards-based curriculum design and assessment for CTE.

II. **Course Design:**

A. This course is part of a master of arts in teaching and a master’s degree in career and technical education.
B. 3.0 credits.
C. Class includes 45 hours of lecture and class participation and 90 hours outside work.
D. This course is required for M. S. in Career and Technical Education; Master of Arts in Teaching
E. No additional fees are charged.
F. This course may be taught in any time frame, but not less than 3 weeks.
G. This is a new course.
H. Coordinated with College of Education, UAA Listserve.
I. Course level justification: Requires the ability to analyze, synthesize, demonstrate teaching strategies, and apply principles learned as evidenced through discussion and written lesson plans.

III. **Course Activities:** Class is conducted using discussion, projects, written assignments, simulation, constructivism, lecture, and technology.

IV. **Registration Restriction:** Graduate standing

V. **Course Evaluation:** Course will be graded A-F.
VI. Outline

1.0 Safety and Procedures
   1.1 Institutional policies (e.g., University of Alaska Anchorage)
   1.2 Emergency procedures
   1.3 Classroom safety
   1.4 Workplace health and safety

2.0 Definition and Goals of Career and Technical Education
   2.1 Educational goals and rationale
   2.2 Curriculum orientation and philosophical stance

3.0 Partnerships
   3.1 Advisory committee
   3.2 Special education/disability support staff
   3.3 Family members
   3.4 Supervisors
   3.5 Business persons

4.0 Principles of Standards-Based Curriculum and Instruction
   4.1 Lesson and unit planning
   4.2 Planning for continuous assessment
   4.3 Validation and verification of source materials
   4.4 Reflective practice

5.0 CTE Content Areas
   5.1 Career clusters
   5.2 Career pathways
   5.3 Contextual teaching and learning

6.0 Integration Approaches
   6.1 Themes
   6.2 Issues
   6.3 Integration of career and technical/academic

7.0 Instructional Methods
   7.1 Instructional planning, scheduling, and delivery
   7.2 Laboratory experiences
   7.3 Demonstration/performance
   7.4 Lecture and constructivism
   7.5 Projects, contests, CTSO activities, field trips
   7.6 Use of media and technology
   7.7 Habits of mind
   7.8 Creative and critical thinking

8.0 Instruction and Assessment
   8.1 Lesson planning
   8.2 Goals, objectives, and student outcomes
   8.3 Material selection and evaluation
   8.4 Purposes and forms of assessment
      8.4.1 Formative and summative assessment
      8.4.2 Alternative forms of assessment
      8.4.3 Classroom grading
VII. Suggested Text


VIII. Bibliography


Instructional Goal:
Provides appropriate instruction and assessment strategies that constitute best practice in CTE teaching and learning.

<table>
<thead>
<tr>
<th>Student Outcomes</th>
<th>Assessment Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze safety hazards in the classroom and workplace and design lessons that include procedures to ensure safe CTE classrooms.</td>
<td>Lesson plan</td>
</tr>
<tr>
<td></td>
<td>Unit plan</td>
</tr>
<tr>
<td></td>
<td>Class discussion</td>
</tr>
<tr>
<td>Examine goals and purposes, principles and theories, and develop and defend a CTE statement of philosophy.</td>
<td>Philosophy statement</td>
</tr>
<tr>
<td>Plan and work cooperatively with business, advisory committees, support personnel, career and technical student organizations, and family members.</td>
<td>Community involvement activity with reflection paper</td>
</tr>
<tr>
<td>Demonstrate contextual teaching and learning concepts, principles, elements, and strategies.</td>
<td>Lesson Plan</td>
</tr>
<tr>
<td></td>
<td>Unit Plan</td>
</tr>
<tr>
<td>Integrate academic and CTE disciplines by engaging students in activities that draw upon various methods, strategies, and resources including technology.</td>
<td>Textbook/curriculum evaluation</td>
</tr>
<tr>
<td></td>
<td>Lesson plan</td>
</tr>
<tr>
<td></td>
<td>Unit plan</td>
</tr>
<tr>
<td>Apply the National Board for Professional Teaching Standards for Career and Technical Education by demonstrating effective teaching strategies and techniques for CTE content areas in response to the diverse needs of learners.</td>
<td>Lesson plan</td>
</tr>
<tr>
<td></td>
<td>Unit plan</td>
</tr>
<tr>
<td></td>
<td>Written paper</td>
</tr>
<tr>
<td>Assess learning by identifying industry recognized certifications.</td>
<td>Unit plan</td>
</tr>
<tr>
<td></td>
<td>Written assignment</td>
</tr>
</tbody>
</table>
### Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

**1a. School or College**
CT CTC  

**1b. Division**
ADVE Division of Career Voc Ed  

**1c. Department**
Career and Technical Education

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>3. Course Number</th>
<th>4. Previous Course Prefix &amp; Number</th>
<th>5a. Credits/CEU</th>
<th>5b. Contact Hours (Lecture + Lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTE</td>
<td>A655</td>
<td></td>
<td>3 credits</td>
<td>(3+0)</td>
</tr>
</tbody>
</table>

6. **Complete Course/Program Title**
Curriculum and Assessment in Career and Technical Education  
Abbreviated Title for Transcript (30 character): Curriculum & Assessment in CTE

7. **Type of Course**
- [X] Academic
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

8. **Type of Action**
- [X] Course
- [ ] Program

- [X] Add
- [ ] Change
- [ ] Delete

9. **Repeat Status No**  
[ ] # of Repeats  
[ ] Max Credits

10. **Grading Basis**
- [X] A-F
- [ ] P/NP
- [ ] NG

11. **Implementation Date**  
From: Fall/2009  
To: /9999

12. [ ] Cross Listed with NA  
[ ] Stacked with Cross-Listed Coordination Signature

13. **List any programs or college requirements that require this course**
M.S. Career and Technical Education

14. **Coordinate with Affected Units:**
Department, School, or College

15. [ ] General Education Requirement
- [ ] Oral Communication
- [ ] Written Communication
- [ ] Quantitative Skills
- [ ] Humanities
- [ ] Fine Arts
- [ ] Social Sciences
- [ ] Natural Sciences
- [ ] Integrative Capstone

16. **Course Description**
Examines principles and procedures in the development of career and technical education curriculum. Studies theory and principles of quality assessment and assessment techniques. Addresses current trends in career and technical education curriculum and assessment, including programs of study and third party assessment.

17a. **Course Prerequisite(s) (list prefix and number)**
NA

17b. **Test Score(s)**
NA

17c. **Co-requisite(s) (concurrent enrollment required)**
NA

17d. **Other Restriction(s)**
- [ ] College
- [ ] Major
- [ ] Class
- [ ] Level

17e. **Registration Restriction(s) (non-codable)**
Graduate standing

18. [ ] Mark if course has fees NONE

19. **Justification for Action**
This is a new course in the M.S. Career and Technical Education program. It provides in-depth study of curriculum and assessment for career and technical educators.

---

**Initiator (faculty only)**

**Deanna Schultz**

Initiator (TYPE NAME)

---

**Approved**

---

**Disapproved:**

**Dean/Director of School/College**

---

**Approved**

---

**Disapproved:**

**Department Chairperson**

---

**Approved**

---

**Disapproved:**

**Academic Board Chairperson**

---

**Approved**

---

**Disapproved:**

**Provost or Designee**

---

72
I. **Course Description:** Examines principles and procedures in the development of career and technical education curriculum. Studies theory and principles of quality assessment and assessment techniques. Addresses current trends in career and technical education curriculum and assessment.

II. **Course Design:**

A. Designed as a course for students seeking a master’s degree in career and technical education, and for current professionals in the field.

B. 3.0 credits.

C. Class includes 45 hours of lecture and class participation and 90 hours outside work.

D. This course is required for M.S. Career and Technical Education.

E. No additional fees are charged.

F. This course may be taught in any time frame, but not less than 3 weeks.

G. This is a new course.

H. Coordinated with College of Education, UAA Listserve.

I. Course level justification: Requires the ability to analyze, synthesize and apply principles learned as demonstrated by a curriculum project and a written research paper.

III. **Course Activities:** Class is conducted using discussion, projects, written assignments, simulation, debate, lecture, and technology.

IV. **Registration Restriction:** Graduate standing.

V. **Course Evaluation:** Course will be graded A-F.

VI. **Course Curriculum:**

1.0 Safety

  1.1 General classroom safety

  1.2 General building safety

  1.3 General campus safety
2.0 Curriculum Development Theory and Models
   2.1 Oliva
   2.2 Wiggins & McTighe
   2.3 Standards-based models
      2.3.1 Integrated System for Workforce Education Curricula (ISWEC)
      2.3.2 Performance-based Instructional Design (PBID) System

3.0 Planning the Curriculum
   3.1 Collecting and assessing school-related data
   3.2 Collecting and assessing community-related data
   3.3 Decision-making in curriculum planning
      3.3.1 Role of philosophy in decision-making
      3.3.2 Influence of national legislation and policies
      3.3.3 Strategies for decision-making

4.0 Establishing the Curriculum Content
   4.1 Setting curriculum goals and objectives
   4.2 Determining curriculum content
      4.2.1 DACUM approach
      4.2.2 Task analysis
      4.2.3 All Aspects of Industry approach
   4.3 Programs of Study
   4.4 Constraints in determining curriculum content

5.0 Foundations of Assessment
   5.1 Role of assessment in teaching
      5.1.1 Measurement
      5.1.2 Evaluation
   5.2 Establishing learning targets

6.0 Quality Assessment Criteria
   6.1 Validity
   6.2 Reliability
   6.3 Bias

7.0 Developing Classroom Assessments
   7.1 Selected response items
   7.2 Constructed response items
   7.3 Performance-based assessment

8.0 Third-party Assessments
   8.1 Selection criteria
   8.2 Sources

VII. Suggested Texts

VIII. Bibliography


IX. Instructional Goals, Student Outcomes, and Assessment Procedures:

A. **Instructional Goal:** Assist students in integrating CTE principles into curriculum planning at the program level and analyze assessments for quality and appropriateness to the instructional goals of the course or program.

B. **Student Outcomes/Assessment Procedures:**

<table>
<thead>
<tr>
<th>Student Outcomes</th>
<th>Assessment Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the fundamental principles and procedures for curriculum planning as they pertain to career and technical education.</td>
<td>Discussion</td>
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<td>Written work</td>
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<td>Project</td>
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<tr>
<td>Demonstrate integration of industry standards into instructional design through development of programs of study.</td>
<td>Written work</td>
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<td></td>
<td>Project</td>
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<tr>
<td>Describe elements of quality assessment in classroom and program assessments.</td>
<td>Discussion</td>
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<td>Written work</td>
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<tr>
<td>Evaluate and critique different formative and summative assessment procedures and techniques.</td>
<td>Discussion</td>
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<td>Written work</td>
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<tr>
<td></td>
<td>Project</td>
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<tr>
<td>Analyze current assessment trends in career and technical education and the use of third-party assessments.</td>
<td>Discussion</td>
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<td></td>
<td>Research paper</td>
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