2006-07 CATALOG
MECHANICAL ENGINEERING
B.S. Degree Requirements
130 Credits

GENERAL REQUIREMENTS

COMMUNICATIONS:- (9)
Engl  111X (3)____
Engl  211X or 213X (3)____
Comm 131X or 141X (3)____

PERSPECTIVES ON THE HUMAN CONDITION:- (18-22)
Complete the 6 courses listed OR 4 of those listed
plus 2 semester length courses in a single AK Native or
other non-English language or 3 semester length
courses (9 credits) in American Sign Language.
Anth 100X/Soc 100X (3)____
Econ/PS 100X (3)____
Hist 100X (3)____
Art/Mus/Thr 200X or Hum 201X
                     or Ans 202X (3)____
Engl/FL 200X (3)____
BA 323X or Comm 300X or Just 300X or Nrm 303X or
Phil 322X or PS 300X (3)____
Language option as listed above:
________( )_____  _______ ( )_____  _______ ( )_____  _______ ( )_____

MATHEMATICS:- (15)
Math 200X (4)____ Math 202X (4)____
Math 201X (4)____ Math 302 (3)____

NATURAL SCIENCE:- (16)
Chem 105X (4)____ Chem 106X (4)____
Phys 211X (4)____ Phys 212X (4)____

LIBRARY & INFO SKILLS:- (0-1)
LS competency test ______ OR
LS 100X or 101X (1)____

COMPLETE 2 DESIGNATED (W) COURSES AND
1 DESIGNATED (O) COURSE OR 2 COURSES
DESIGNATED (O/2) AT THE
UPPER DIVISION LEVEL:
________(W) _________(W)
________(O) OR _________(O/2)________(O/2)

UPPER DIVISION CREDITS:- (39)
Transfer Credits _____
UAF Credits (24)* _____
TOTAL TO DATE: _____
TO BE COMPLETED: _____
*a minimum of 24 UAF credits

*Designates only grades of "C" or better may be used
to fulfill this requirement, with the exception of ES 101.

*MAJOR REQUIREMENTS

A. Complete the following:- (37)
M.E. 302 (4)____ M.E. 408 (3)____
M.E. 308 (3)____ M.E. 415 (3)____(W)
M.E. 313 (3)____ M.E. 441 (3)____
M.E. 321 (3)____ M.E. 487 (3)____(W/O)
M.E. 334 (3)____ M.E.____(3)____+
M.E. 403 (3)____ M.E.____(3)____+
+Must be at the 400-level or above.

B. Complete a Technical elective engineering
course at the 400-level or above:
____________(3)____ ("C" grade or better)

C. Complete the following: Must earn a "C" grade
or better in ES 331, ES 341 and ES 346:- (3)
E.S. 101 (3)____
E.S. 201 (3)____
E.S. 209 (3)____
E.S. 210 (3)____
E.S. 301 (3)____
E.S. 307 (3)____
E.S. 331 (3)____*
E.S. 341 (4)____*
E.S. 346 (3)____*
ESM 450 (3)____(W)

D. Complete 2 elective credits:
______________(2)____

E. Complete the Fundamental Engineering
Exam:___________

Note: Students electing to complete the
aerospace engineering concentration must complete
the following as part of their program requirements
("C" or better grades) and complete a senior design
project that is related to aerospace engineering:
ME 450 (3)____ ME 452 (3)____
ME 451 (3)____ ME 453 (3)____

Note: Students electing to complete the
petroleum engineering concentration must complete
the following as part of their program requirements
("C" or better grades) and complete a senior design
that is related to petroleum engineering:
ME 409 (3)____ ME 416 (3)____
or equivalent; plus 2 400-level PETE courses:
Pete_______ (3)____ Pete _______ (3)____

Credits for core/general requirements: 59
Credits required for major: 69
Elective credits: 2
Total credits required for degree 130

9/25/2006
## Mechanical Engineering Suggested Four-Year Plan

**Fall Semester - 16 credits**
- ENGL 111X - Intro to Academic Writing (3)
- MATH 200X - Calculus I (4)
- ES 101 - Introduction to Engineering (3)
- CHEM 105X - General Chemistry I (4)
- Perspectives on the Human Condition (3)

**Fall Semester - 17 credits**
- PHYS 211X - General Physics (4)
- MATH 202X - Calculus III (4)
- ES 209 - Statics (3) (ES 101, MATH 201; coreq PHYS 211)
- ME 321 - Industrial Processes (3)
- ENGL 211X/213X Academic Writing about Lit or Soc/Nat Sciences (3)

**Fall Semester - 16 credits**
- ES 307 - Elem. of Electrical Eng. (3) (MATH 202)
- ES 301 - Engineering Analysis (3) (MATH 302, ES 210)
- ES 331 - Mech. of Materials (3) (ES 208 or 209 and MATH 201)
- ME 302 - Mechanical Design I (4) (ES 208 or 210)
- Perspectives on the Human Condition (3)

**Fall Semester - 17 credits**
- ME 408 - Dynamics of Systems (3) (ES 201, 301)
- ME 441 - Heat and Mass Transfer (3) (ES 346, 341)
- ME Elective (3)
- Technical Elective (3)
- ESM 450W - Econ. Analysis and Ops. (3) (ES 201 and senior)
- Elective (2)

**Spring Semester - 17 credits**
- COMM 131X or 141X (3)
- MATH 201X - Calculus II (4)
- ES 201 - Computer Tech. (3) (MATH 107 and 108 or enroll MATH 200)
- CHEM 106X - General Chemistry II (4)
- Perspectives on the Human Condition (3)

**Spring Semester - 16 credits**
- PHYS 212X - General Physics (4)
- MATH 302 - Differential Equations (3) (MATH 202)
- ES 210 - Dynamics (3) (ES 209)
- ES 346 - Thermodynamics (3) (MATH 201 and PHYS 211)
- Perspectives on the Human Condition (3)

**Spring Semester - 16 credits**
- ME 313 - Mech. Engr. Thermodyn. (3) (ES 341, 346)
- ME 334 - Elem. of Material Science Engr (3) (Chem 106 and PHYS 212)
- ME 308 - Instrumentation and Measurement (3) (ES 307)
- ES 341 - Fluid Mechanics (4) (MATH 201 and ES 208 or 210)
- Perspectives on the Human Condition (3)

**Spring Semester - 15 credits**
- ME 403 - Mechanical Design II (3) (ME 302, ES 331)
- ME 415W - Thermal Systems Lab (3) (ME 313, ME 441)
- ME 487W,O - Design Project (3)
- ME Elective (3)
- Perspectives on the Human Condition (3)

**Spring Semester - 12 credits**
- ENGL 111X - Intro to Academic Writing (3)
- MATH 200X - Calculus I (4)
- ES 101 - Introduction to Engineering (2)
- Perspectives on the Human Condition (3)

**Spring Semester - 13 credits**
- COMM 131X or 141X Fund of Oral Communication (3)
- MATH 201X - Calculus II (4)
- ES 201 - Computer Tech. (3) (MATH 107 and 108 or enroll MATH 200)
- Perspectives on the Human Condition (3)

**Spring Semester - 14 credits**
- CHEM 105X - General Chemistry (4)
- ES 346 - Thermodynamics (3) (MATH 201 and PHYS 211)
- ME 302 - Mechanical Design I (4) (ES 208 or 210)
- Perspectives on the Human Condition (3)

**Spring Semester - 12 credits**
- ME 313 - Mech. Engr. Thermodyn. (3) (ES 341, 346)
- ME 334 - Elem. of Material Science Engr (3) (Chem 106 and PHYS 212)
- ME 308 - Instrumentation and Measurement (3) (ES 307)
- ME 403 - Mechanical Design II (3) (ME 302, ES 331)
- ME Elective (3)
- Perspectives on the Human Condition (3)

**Spring Semester - 12 credits**
- ME 441 - Heat and Mass Transfer (3) (ES 346, 341)
- ME Elective (3)
- Technical Elective (3)
- ESM 450W - Econ. Analysis and Operations (3) (ES 201 and senior)
- Elective (2)

## Mechanical Engineering Suggested Five-Year Plan

**Fall Semester - 12 credits**
- ENGL 111X - Intro to Academic Writing (3)
- MATH 200X - Calculus I (4)
- ES 101 - Introduction to Engineering (2)
- Perspectives on the Human Condition (3)

**Fall Semester - 14 credits**
- PHYS 211X - General Physics I (4)
- MATH 202X - Calculus III (4)
- ES 209 - Statics (3) (ES 101 and MATH 201; coreq PHYS 211)
- ENGL 211X/213X Academic Writing about Lit or Soc/Nat Sciences (3)

**Fall Semester - 13 credits**
- CHEM 105X - General Chemistry (4)
- ES 301 - Engineering Analysis (3) (MATH 302, ES 210)
- ES 331 - Mechanics of Materials (3) (ES 208 or 209 and MATH 201)
- Perspectives on the Human Condition (3)

**Fall Semester - 13 credits**
- ES 307 - Elements of Electrical Engineering (3) (MATH 202)
- ES 341 - Fluid Mechanics (4) (MATH 201 and ES 208 or 210)
- ME 408 - Dynamics of Systems (3) (ES 201, 301)
- Perspectives on the Human Condition (3)

**Fall Semester - 14 credits**
- ME 441 - Heat and Mass Transfer (3) (ES 346, 341)
- ME Elective (3)
- Technical Elective (3)
- ESM 450W - Econ. Analysis and Operations (3) (ES 201 and senior)
- Elective (2)

**Spring Semester - 13 credits**
- COMM 131X or 141X Fund of Oral Communication (3)
- MATH 201X - Calculus II (4)
- ES 201 - Computer Tech. (3) (MATH 107 and 108 or enroll MATH 200)
- Perspectives on the Human Condition (3)

**Spring Semester - 13 credits**
- PHYS 212X - General Physics (4)
- MATH 302 - Differential Equations (3) (MATH 202)
- ES 210 - Dynamics (3) (ES 209)
- Perspectives on the Human Condition (3)

**Spring Semester - 14 credits**
- CHEM 106X - General Chemistry (4)
- ES 346 - Thermodynamics (3) (MATH 201 and PHYS 211)
- ME 302 - Mechanical Design I (4) (ES 208 or 210)
- Perspectives on the Human Condition (3)

**Spring Semester - 12 credits**
- ME 313 - Mech. Engr. Thermodyn. (3) (ES 341, 346)
- ME 334 - Elem. of Material Science Engr (3) (Chem 106 and PHYS 212)
- ME 308 - Instrumentation and Measurement (3) (ES 307)
- ME 403 - Mechanical Design II (3) (ME 302, ES 331)
- ME Elective (3)
- Perspectives on the Human Condition (3)

**Spring Semester - 12 credits**
- ME 415W - Thermal Systems Lab (3) (ME 313, ME 441)
- ME 487W,O - Design Project (3)
- ME Elective (3)
- Perspectives on the Human Condition (3)

Notes:
1. The semester-by-semester breakdown is a suggestion only. You should consult with your advisor to work out a schedule.
2. Prerequisites for certain courses are listed in parentheses at the end. You should consult the catalog for additional details.
3. All ME required courses are offered once a year.
4. All ES courses are usually offered every semester with the exception of ES 307 (Fall).
5. ESM 450W is usually offered every semester.