



Lakehead University

Faculty of Engineering

REQUEST REPORT

Request Tracking Number: 2013-ENG-2940
Request Title: Mechanical 2013 Pr. Changes

Request Effective Date: Fall 2014
Request Status: In Workflow
Request can't be split

Request Contents

| Type | Title |
|----------------------------|--|
| 1. New Version of a Degree | Bachelor of Engineering (Mechanical Engineering) |

Request History

| Workflow Step | Workflow Action | User | Change Made | Comments | Date |
|---------------------------------------|-----------------|---------------|-------------|-----------------------|------------|
| Initiator | Approved | Laura Parker | Yes | Submitted to workflow | 12/02/2013 |
| Dean and Faculty Council Review Stage | Approved | David Barnett | No | approved | 12/02/2013 |

Supporting Documents

| File Name | Uploaded By | Upload Date | Size |
|-----------|-------------|-------------|------|
|-----------|-------------|-------------|------|

Supporting Documents Audit Trail

| File Name | User | Date | Action |
|-----------|------|------|--------|
|-----------|------|------|--------|

Notes

| Date | User | Note |
|------|------|------|
|------|------|------|

| | | |
|----|-------------------------|---|
| 1. | New Version of a Degree | BENGDIP.MECH - Bachelor of Engineering (Mechanical Engineering) |
|----|-------------------------|---|

Degree Details

| CURRENT VERSION | PROPOSED VERSION |
|---|---|
| BENGDIP.MECH - Bachelor of Engineering (Mechanical Engineering) Start Term: Fall 2004 End Term: No Specified End Date | BENGDIP.MECH - Bachelor of Engineering (Mechanical Engineering) Start Term: Fall 2004 2014 End Term: No Specified End Date |

| <u>Required Information</u> | |
|---|---|
| CURRENT VERSION | PROPOSED VERSION |
| Institution Unit Faculty of Engineering | Institution Unit Faculty of Engineering |
| Degree Type BENG | Degree Type BENG |
| Major MECH | Major MECH |
| Minor | Minor |
| Specialization | Specialization |
| Rationale Add ENGI 0670 to list of Mechanical Engineering Elective Courses, as per Dean's request 29Apr2013. (Should have been included when course was first approved to be calendared.) | Rationale Add ENGI 0670 to list of Mechanical Engineering Elective Courses, as per Dean's request 29Apr2013. (Should have been included when course was first approved to be calendared.) Move ENGI 4130, 4438 and 3555 to different terms within the program; distribute student load more evenly |
| Requirements Four Year program First Year: Fall Term Lec Lab Engineering 1110* - Engineering Drawing 1 3 | Requirements Four Year program - 19 11 +Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take Mathematics 1071. - 15 |

| | |
|--|---|
| Engineering 1230 - Statics | 9 |
| 3 | |
| 1 | <i>*Students who are judged to have adequate previous drawing background will be given the opportunity to obtain credit for this course by taking a special examination following registration.</i> |
| Engineering 1233 - Mechanics of Materials I | |
| 3 | <i>**With the approval of the Department of Mechanical Engineering, Computer Science 1411 may be replaced by another high-level computer programming course.</i> |
| 1 | - |
| Engineering 1553 - Materials and Processes | 18 |
| 3 | |
| 3 | 7.5 |
| English 1238 - Technical Writing II | - |
| 3 | |
| 0 | 19 |
| Mathematics 1071+ - Vectors and Matrices | |
| 3 | 5 |
| 2 | <i>*With the approval of the Mechanical Engineering Department, this course may be replaced by Engineering 2939 - Technology Project (0-0; 3-0).</i> |
| Mathematics 1210 - Calculus I | |
| 3 | |
| 1 | <i>**This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.</i> |
| 19 | Note: At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Mechanical Engineering. |
| 11 | |
| +Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take Mathematics 1071. | - |
| Winter Term | 18 |
| | 4.5 |
| Lec | 3 |
| Lab | |
| Engineering 1111 - Dynamics I | 4 |
| 3 | |

| | |
|---|---|
| 1 | 31Engineering 3555-4130 - Mechanical Engineering Laboratory |
| Engineering 1533 - Mechanics of Materials II | 0 |
| 3 | |
| 1.5 | |
| Engineering 1635 - Fluid Mechanics | 3 |
| 3 | Design I3 |
| 1.5 | 1 |
| Engineering 1731 - Mechanical Engineering Drawing | |
| 0 | Mathematics 3032 - Complex Functions and PDEs |
| 3 | 3 |
| Computer Science 1411** - Computer Programming I | 1 |
| 3 | Engineering 3558 - Numerical Methods and Modeling |
| 1 | 3 |
| Mathematics 1230 - Calculus II | 1.5 |
| 3 | One complementary studies* elective course |
| 1 | 3 |
| 15 | 0 |
| 9 | - |
| | 18 |
| <i>*Students who are judged to have adequate previous drawing background will be given the opportunity to obtain credit for this course by taking a special examination following registration.</i> | 8.5 |
| <i>**With the approval of the Department of Mechanical Engineering, Computer Science 1411 may be replaced by another high-level computer programming course.</i> | |
| Second Year: Fall Term | -Fourth Year: Fall Term |
| Lec | Lec |

| | |
|---|---|
| Lab | Lab |
| Engineering 2032 - Applied Thermodynamics | Engineering 4130-4436 - Mechanical Engineering Design I |
| 3 | 3 |
| 1.5 | |
| Engineering 2033 - Heat Transfer | |
| 3 | 4 |
| 1.5 | Engineering 4436 - Mechanical Vibrations <i>Vibrations</i> |
| Engineering 2111 - Dynamics II | |
| 3 | <i>3</i> |
| 1 | <i>1 Engineering 4438 - Mechanical Engineering Design II</i> |
| Engineering 2151* - Electrical and Electronics Technology | 3 |
| 3 | 1 |
| 1.5 | Engineering 4969 - Degree Project |
| Engineering 2336** - Industrial Engineering | 3 |
| 3 | 0 |
| 1 | Mathematics 4030 - Probability and Statistics |
| Mathematics 2050 - Applied Analysis I | 3 |
| <u>3</u> | 0 |
| <u>1</u> | Two Engineering elective courses |
| 18 | 6 |
| 7.5 | 2 |
| | One complementary studies* elective course |
| Second Year: Winter Term | <u>3</u> |
| Lec | <u>0</u> |
| Lab | |

| | |
|--|--|
| Engineering 2332 - Engineering Management and Economics | - |
| 3 | 21 |
| 0 | 4 |
| Engineering 2333 - Machine Design | 4438-3555 - Mechanical Engineering Design II |
| 3 | 3 |
| 1 | |
| Engineering 2434 - Measurement, Instrumentation and Control | 4 |
| 3 | Laboratory |
| 3 | 0 |
| Engineering 2651* - Heating, Ventilating & Air Conditioning | |
| 3 | 3 |
| 0 | |
| Engineering 3014** - Engineering Chemistry | Engineering 4539 - Professional Practice and Law |
| 4 | 3 |
| 0 | |
| Mathematics 2070 - Applied Analysis II | 0 |
| <u>3</u> | Engineering 4969 - Degree Project |
| 1 | 3 |
| 19 | 0 |
| 5 | One Engineering elective course |
| | 3 |
| <i>*With the approval of the Mechanical Engineering Department, this course may be replaced by Engineering 2939 - Technology Project (0-0; 3-0).</i> | 1 |
| | One Science elective course |
| <i>**This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.</i> | 3 |
| Note: | 0 |

| | |
|---|---|
| <p>At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Mechanical Engineering.</p> | <p>One complementary studies* elective course</p> <p><u>3</u></p> |
| <p>Third Year: Fall Term</p> | <p><u>0</u></p> |
| <p>Lec</p> | <p>-</p> |
| <p>Lab</p> | <p>21</p> |
| <p>Engineering 3055 - Intermediate Mechanics of Materials</p> | <p>2</p> |
| <p>3</p> | <p>MECHANICAL ENGINEERING ELECTIVE COURSES</p> |
| <p>1</p> | <p>Mechanical Engineering students will normally select their engineering elective courses from the following list. Not all elective courses in this list will be offered every year.</p> |
| <p>Engineering 3337 - Fluid Dynamics</p> | <p>Engineering 0330 - Fluid System Design</p> |
| <p>3</p> | <p>Engineering 0450 - Finite Element Method in Mechanical Engineering</p> |
| <p>1</p> | <p>Engineering 0536 - Heat Exchanger Design and Thermal Radiation</p> |
| <p>Engineering 4032 - Materials Science</p> | <p>Engineering 0537 - Manufacturing Processes and Production Systems</p> |
| <p>3</p> | <p>Engineering 0538 - Topics in Mechanical Engineering</p> |
| <p>1.5</p> | <p>Engineering 0557 - Introduction to Robotics</p> |
| <p>Mathematics 3012 - Vector Analysis and Power Series</p> | <p>Engineering 0574 - Industrial Noise and Vibration Control</p> |
| <p>3</p> | <p>Engineering 0575 - Engineering Design Synthesis and Analysis</p> |
| <p>1</p> | <p>Engineering 0576 - Condition-Monitoring and Fault Diagnostics</p> |
| <p>One science elective course</p> | <p>Engineering 0579 - Computational Methods in Mechanical Engineering</p> |
| <p>3</p> | <p>Engineering 0656 - Analysis and Application of Composite Materials</p> |
| <p>0</p> | <p>Engineering 0657 - Energy Conversion Engineering</p> |
| <p>One complementary studies* elective course</p> | <p>Engineering 0658 - Aerodynamics</p> |
| <p><u>3</u></p> | <p>Engineering 0659 - Signal Processing for Mechanical Systems</p> |
| <p><u>0</u></p> | <p>Engineering 0670 - Combustion and Emissions</p> |
| <p>18</p> | <p>*For information regarding complementary studies elective courses contact the Department Chair.</p> |
| <p>4.5</p> | |

Third Year: Winter Term

Lec

Lab

| | |
|--|--|
| Engineering 3436 - Engineering Thermodynamics | |
| 3 | |
| 1 | |
| Engineering 3451 - Dynamics of Machines | |
| 3 | |
| 1 | |
| Engineering 3454 - Applied Heat Transfer | |
| 3 | |
| 1 | |
| Engineering 3555 - Mechanical Engineering Laboratory | |
| 0 | |
| 3 | |
| Mathematics 3032 - Complex Functions and PDEs | |
| 3 | |
| 1 | |
| Engineering 3558 - Numerical Methods and Modeling | |
| 3 | |
| 1.5 | |
| One complementary studies* elective course | |
| <u>3</u> | |
| <u>0</u> | |
| 18 | |
| 8.5 | |

| | |
|--|--|
| <p>Fourth Year: Fall Term</p> <p>Lec</p> <p>Lab</p> <p>Engineering 4130 - Mechanical Engineering Design I 3 1</p> <p>Engineering 4436 - Mechanical Vibrations 3 1</p> <p>Engineering 4969 - Degree Project 3 0</p> <p>Mathematics 4030 - Probability and Statistics 3 0</p> <p>Two Engineering elective courses 6 2</p> <p>One complementary studies* elective course 3 0</p> <p>21 4</p> | |
|--|--|

Fourth Year: Winter Term

| | |
|--|--|
| <p>Lec</p> <p>Lab</p> <p>Engineering 3336 - Economic Analysis for Engineers</p> <p>3</p> <p>0</p> <p>Engineering 4438 - Mechanical Engineering Design II</p> <p>3</p> <p>1</p> <p>Engineering 4539 - Professional Practice and Law</p> <p>3</p> <p>0</p> <p>Engineering 4969 - Degree Project</p> <p>3</p> <p>0</p> <p>One Engineering elective course</p> <p>3</p> <p>1</p> <p>One Science elective course</p> <p>3</p> <p>0</p> <p>One complementary studies* elective course</p> <p><u>3</u></p> <p><u>0</u></p> | |
|--|--|

21

2

| | |
|--|--|
| <p>MECHANICAL ENGINEERING ELECTIVE COURSES</p> <p>Mechanical Engineering students will normally select their engineering elective courses from the following list. Not all elective courses in this list will be offered every year.</p> <p>Engineering 0330 - Fluid System Design Engineering 0450 - Finite Element Method in Mechanical Engineering Engineering 0536 - Heat Exchanger Design and Thermal Radiation Engineering 0537 - Manufacturing Processes and Production Systems Engineering 0538 - Topics in Mechanical Engineering Engineering 0557 - Introduction to Robotics Engineering 0574 - Industrial Noise and Vibration Control Engineering 0575 - Engineering Design Synthesis and Analysis Engineering 0576 - Condition-Monitoring and Fault Diagnostics Engineering 0579 - Computational Methods in Mechanical Engineering Engineering 0656 - Analysis and Application of Composite Materials Engineering 0657 - Energy Conversion Engineering Engineering 0658 - Aerodynamics Engineering 0659 - Signal Processing for Mechanical Systems Engineering 0670 - Combustion and Emissions</p> <p>*For information regarding complementary studies elective courses contact the Department Chair.</p> | |
|--|--|

| <u>Budgetary Considerations</u> | |
|--|---|
| CURRENT VERSION | PROPOSED VERSION |
| Student Enrolment | Student Enrolment <i>No</i> |
| Student Enrolment Other Units | Student Enrolment Other Units <i>No</i> |
| Additional Resources | Additional Resources <i>No</i> |
| Teaching Loads | Teaching Loads <i>No</i> |
| TeachingSupport Services | TeachingSupport Services <i>No</i> |
| Outside Support | Outside Support <i>No</i> |