



Lakehead University Faculty of Engineering

REQUEST REPORT

Request Tracking Number: 2013-ENG-1822
Request Title: Electrical ENGI 0330

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 (Electrical Engineering)

Request History

Workflow Step	Workflow Action	User	Change Made	Comments	Date
Initiator	Approved	Laura Parker	Yes	Submitted to workflow	06/28/2013
Dean and Faculty Council Review Stage	Approved	David Barnett	No	approved	08/23/2013

Supporting Documents

File Name	Uploaded By	Upload Date	Size
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Supporting Documents Audit Trail

File Name	User	Date	Action
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Notes

Date	User	Note
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1.	New Version of a Degree	BENDIP.ELEC - Bachelor of Engineering (Electrical Engineering)
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Degree Details

CURRENT VERSION	PROPOSED VERSION
BENDIP.ELEC - Bachelor of Engineering (Electrical Engineering) Start Term: Fall 2013 End Term: No Specified End Date	BENDIP.ELEC - Bachelor of Engineering (Electrical Engineering) Start Term: Fall 2013 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 ELEC	Major ELEC
Minor	Minor
Specialization	Specialization
Rationale To add additional electives to offering. Also, 2013-SCI-457 PHYS 1070 associated change to BEng (Electrical).	Rationale To add additional electives to offering. Also, 2013-SCI-457 PHYS 1070 associated change to BEng (Electrical) Remove a course from the list of available electives. ENGI 0339 which is not offered.
Requirements Four Year program First Year: Fall Term Lec Lab <u>Engineering 1236</u> - Electric Circuit Theory I 3 1.5 <u>Engineering 1252</u> - Electrical Measurements and Measuring Instruments	Requirements Four Year program First Year: Fall Term Lec Lab <u>Engineering 1236</u> - Electric Circuit Theory I 3

2

3

Engineering 1637 - Computer Logic Circuits

3

1.5

English 1238 - Technical Writing II

3

0

Mathematics 1071+ - Vectors and Matrices

3

2

Mathematics 1210 - Calculus I

3

1

Physics 1070 - Semiconductor Physics

3

1

20

10

+Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take Mathematics 1071.

First Year: Winter Term

Lec

Lab

Engineering 1232 - Introduction to Microprocessors

3

1.5

1.5

Engineering 1252 - Electrical Measurements and Measuring Instruments

2

3

Engineering 1637 - Computer Logic Circuits

3

1.5

English 1238 - Technical Writing II

3

0

Mathematics 1071+ - Vectors and Matrices

3

2

Mathematics 1210 - Calculus I

3

<u>Engineering 1536</u> - Electric Circuit Theory II	
3	1
1.5	Physics 1070 - Semiconductor Physics
<u>Engineering 1552</u> - Principles of Engineering Mechanics	
4	3
0	
<u>Engineering 1634</u> - Electronics I	1
3	-
1.5	20
<u>Computer Science 1411**</u> - Computer Programming I	
3	10
1	+Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take Mathematics 1071.
<u>Mathematics 1230</u> - Calculus II	First Year: Winter Term
<u>3</u>	
1	Lec
19	
6.5	Lab
<i>**With the approval of the Department of Electrical Engineering, <u>Computer Science 1411</u> may be replaced by another high-level computer programming course.</i>	Engineering 1232 - Introduction to Microprocessors 3 1.5Engineering 1536 - Electric Circuit Theory II
Second Year: Fall Term	3
Lec	
Lab	1.5
<u>Engineering 2132</u> - Electronics II	Engineering 1552 - Principles of Engineering Mechanics
3	
Printed: 08/23/2013	4

1.5	4
<u>Engineering 2133</u> - Communications I	
3	0
1.5	Engineering 1634 - Electronics I
<u>Engineering 2258</u> - Electric Machines I	3
3	
1.5	1.5
<u>Engineering 2438</u> - Control Systems	Computer Science 1411** - Computer Programming I
3	
1.5	3
<u>Engineering 2451</u> - Electrical Power Systems	
3	
1.5	1
<u>Engineering 3015**</u> - Engineering Thermodynamics and Heat Transfer	Mathematics 1230 - Calculus II
4	
0	3
<u>Mathematics 2050</u> - Applied Analysis I	
<u>3</u>	1
1	-
22	19
8.5	
Second Year: Winter Term	6.5
Lec	<i>**With the approval of the Department of Electrical Engineering, <u>Computer Science 1411</u> may be replaced by another high-level computer programming course.</i>
Lab	
	Second Year: Fall Term
Printed: 08/23/2013	
	5

Engineering 2332 - Engineering Management and Economics

3

0

Engineering 2430 - Electrical Control Devices & Applications

3
1.5

Engineering 2439 - Communications II

3

1.5

Engineering 2453 - Computer Communications and Networking

3

1.5

Engineering 2939 - Technology Project

3

0

Engineering 3014** - Engineering Chemistry

4

0

Mathematics 2070 - Applied Analysis II

3

1

22

5.5

***This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.*

Note:

Lec

Lab

Engineering 2132 - Electronics II

3

1.5

Engineering 2133 - Communications I

3

1.5

Engineering 2258 - Electric Machines I

3

1.5

Engineering 2438 - Control Systems

3

1.5

Engineering 2451 - Electrical Power Systems

Printed: 08/23/2013

At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Electrical Engineering.

Third Year: Fall Term

Lec

Lab

Engineering 3013 - Circuit Theory and Design I

3

1.5

Engineering 3334 - Advanced Controls I

3

1.5

Engineering 4032 - Materials Science

3

1.5

Mathematics 3012 - Vector Analysis and Power Series

3

1

Mathematics 4030 - Probability and Statistics

3

0

One complementary studies* elective course

3

0

18

5.5

Third Year: Winter Term

3

1.5

Engineering 3015 - Engineering Thermodynamics and Heat Transfer

4

0

Mathematics 2050 - Applied Analysis I

3

1

-
22

8.5

Second Year: Winter Term

Lec

Lab

Engineering 2332 - Engineering Management and Economics

	3
Lec	
Lab	0
<u>Engineering 3336</u> - Economics Analysis for Engineers	
3	Engineering 2430 - Electrical Control Devices & Applications 3
0	1.5 Engineering 2439 - Communications II
<u>Engineering 3430</u> - Computer Circuits Design	
3	3
1.5	
<u>Mathematics 3032</u> - Complex Functions and PDEs	1.5
3	Engineering 2453 - Computer Communications and Networking
1	
<u>Engineering 3558</u> - Numerical Methods and Modeling	3
3	
1.5	1.5
Two engineering elective courses	
6	Engineering 2939 - Technology Project
3	3
One complementary studies* elective course	
<u>3</u>	0
<u>0</u>	Engineering 3014** - Engineering Chemistry
21	4
7.5	0
Fourth Year: Fall Term	Mathematics 2070 - Applied Analysis II

Lec	3
Lab	
<u>Engineering 4053</u> - Communications Systems	1
3	
1.5	
<u>Engineering 4054</u> - VLSI Circuit Design	-
3	22
1.5	
<u>Engineering 4136</u> - Analog Integrated Circuits	
3	
	5.5
1.5	
<u>Engineering 4258</u> - Electric Machines II	
3	<i>**This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.</i>
1.5	
<u>Engineering 4969</u> - Degree Project	Note: At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Electrical Engineering.
3	
0	Third Year: Fall Term
<u>Physics 3211</u> - Electromagnetic Theory	
3	
1	Lec
One complementary studies* elective course	
<u>3</u>	Lab
<u>0</u>	Engineering 3013 - Circuit Theory and Design I
21	3
7	
	1.5
Fourth Year: Winter Term	
Lec	Engineering 3334 - Advanced Controls I
	3

Lab	
<u>Engineering 4539</u> - Professional Practice and Law	
3	1.5
0	Engineering 4032 - Materials Science 3 1.5 Mathematics 3012 - Vector Analysis and Power Series
<u>Engineering 4632</u> - Digital Signal Processing	
3	3
1.5	
<u>Engineering 4969</u> - Degree Project	
3	1
0	Mathematics 4030 - Probability and Statistics
Two engineering elective courses	
6	3
0	
One complementary studies* elective course	0
<u>3</u>	One complementary studies* elective course
<u>0</u>	3
18	
1.5	0
ELECTRICAL ENGINEERING ELECTIVE COURSES	- 18
Electrical 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.	5.5
<u>Engineering 0138</u> - Advanced Controls	Third Year: Winter Term
<u>Engineering 0150</u> - Microwave Circuits and Design	
<u>Engineering 0339</u> - Process Optimization	
<u>Engineering 0438</u> - Power System Analysis and Design	
<u>Engineering 0531</u> - Topics in Electrical Engineering	
<u>Engineering 0550</u> - Optical Communications	Lec
Printed: 08/23/2013	

Engineering 0554 - Power Electronics
Engineering 0573 - Fuzzy Logic Expert Systems
Engineering 0578 - Wireless Communications
Engineering 0654 - Advanced Electronic Devices

*For information regarding complementary studies elective courses, contact Department Chair.

Note:

On the advice of the Chair of the Electrical Engineering Department students may interchange the position of complementary studies electives and Engineering electives from one year to another in their program to accommodate course selection.

Lab

Engineering 3336 - Economics Analysis for Engineers

3

0

Engineering 3430 - Computer Circuits Design

3

1.5

Mathematics 3032 - Complex Functions and PDEs

3

1

Engineering 3558 - Numerical Methods and Modeling

3

1.5

Two engineering elective courses

6

3

One complementary studies* elective course

3

0

21

7.5

Fourth Year: Fall Term

Lec

Lab

Engineering 4053 - Communications
Systems 3 1.5
Engineering 4054 - VLSI Circuit
Design 3 1.5
Engineering 4136 - Analog
Integrated Circuits

3

1.5

Engineering 4258 - Electric Machines II

3

1.5

Engineering 4969 - Degree Project

3

0

Physics 3211 - Electromagnetic Theory

3

1

One complementary studies* elective course

3

0

-
21

7

Fourth Year: Winter Term

Lec

Lab

Engineering 4539 - Professional Practice and Law

3

0

Engineering 4632 - Digital Signal Processing

3

1.5

Engineering 4969 - Degree Project

3

0

Two engineering elective courses

6

0

One complementary studies* elective course

3

0

18

1.5

ELECTRICAL ENGINEERING ELECTIVE COURSES

Electrical 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.

Engineering 0138 - Advanced Controls

Engineering 0150 - Microwave Circuits and Design

Engineering 0339 - Process

Optimization Engineering 0438 - Power System Analysis and Design

Engineering 0531 - Topics in Electrical Engineering

Engineering 0550 - Optical Communications

Engineering 0554 - Power Electronics

Engineering 0573 - Fuzzy Logic Expert Systems

Engineering 0578 - Wireless Communications

Engineering 0654 - Advanced Electronic Devices

*For information regarding complementary studies elective courses, contact Department Chair.

Note:

On the advice of the Chair of the Electrical Engineering Department students may interchange the position of complementary studies electives and Engineering electives from one year to another in their program to accommodate course selection.

Budgetary Considerations

CURRENT VERSION	PROPOSED VERSION
Student Enrolment No	Student Enrolment No
Student Enrolment Other Units No	Student Enrolment Other Units No
Additional Resources No	Additional Resources No
Teaching Loads No	Teaching Loads No
TeachingSupport Services No	TeachingSupport Services No
Outside Support No	Outside Support No

History

BENDIP.ELEC - Bachelor of Engineering (Electrical Engineering)



Curriculum Request #: 2013-ENG-1822

Date: 06/28/2013, 04:49 PM **Workflow Step:** Initiator
User: Laura Parker **Workflow Action:** Approve

Field Name	Previous Value	New Value			Culture
StartTerm	Fall 2013	Fall 2014			
Rationale	To add additional electives to offering. Also, 2013-SCI-457 PHYS 1070 associated change to BEng (Electrical).	Remove a course from the list of available electives. ENGI 0339 which is not offered.			
Requirements	Four Year program	Four Year program			
	First Year: Fall Term	Lec	Lab	First Year: Fall Term	Lec Lab
	<u>Engineering 1236</u> - Electric Circuit Theory I	3	1.5	<u>Engineering 1236</u> - Electric Circuit Theory I	3 1.5
	<u>Engineering 1252</u> - Electrical Measurements and Measuring Instruments	2	3	<u>Engineering 1252</u> - Electrical Measurements and Measuring Instruments	2 3
	<u>Engineering 1637</u> - Computer Logic Circuits	3	1.5	<u>Engineering 1637</u> - Computer Logic Circuits	3 1.5
	<u>English 1238</u> - Technical Writing II	3	0	<u>English 1238</u> - Technical Writing II	3 0
	<u>Mathematics 1071+</u> - Vectors and Matrices	3	2	<u>Mathematics 1071+</u> - Vectors and Matrices	3 2
	<u>Mathematics 1210</u> - Calculus I	3	1	<u>Mathematics 1210</u> - Calculus I	3 1
	<u>Physics 1070</u> - Semiconductor Physics	3	1	<u>Physics 1070</u> - Semiconductor Physics	3 1
		20	10		20 10
	<i>+Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take <u>Mathematics 1071</u>.</i>			<i>+Students who have completed Gr. 12U Calculus and Vectors with a minimum grade of 60% are not required to take <u>Mathematics 1071</u>.</i>	
	First Year: Winter Term	Lec	Lab	First Year: Winter Term	Lec Lab
	<u>Engineering 1232</u> - Introduction to Microprocessors	3	1.5	<u>Engineering 1232</u> - Introduction to Microprocessors	3 1.5
	<u>Engineering 1536</u> - Electric Circuit Theory II	3	1.5	<u>Engineering 1536</u> - Electric Circuit Theory II	3 1.5
	<u>Engineering 1552</u> - Principles of Engineering Mechanics	4	0	<u>Engineering 1552</u> - Principles of Engineering Mechanics	4 0
	<u>Engineering 1634</u> - Electronics I	3	1.5	<u>Engineering 1634</u> - Electronics I	3 1.5
	<u>Computer Science 1411**</u> - Computer Programming I	3	1	<u>Computer Science 1411**</u> - Computer Programming I	3 1
	<u>Mathematics 1230</u> - Calculus II	3	1	<u>Mathematics 1230</u> - Calculus II	3 1
		19	6.5		19 6.5
	<i>**With the approval of the Department of Electrical Engineering, <u>Computer Science 1411</u> may be replaced by another high-level computer programming course.</i>			<i>**With the approval of the Department of Electrical Engineering, <u>Computer Science 1411</u> may be replaced by another high-level computer programming course.</i>	
	Second Year: Fall Term	Lec	Lab	Second Year: Fall Term	Lec Lab
	<u>Engineering 2132</u> - Electronics II	3	1.5	<u>Engineering 2132</u> - Electronics II	3 1.5
	<u>Engineering 2133</u> - Communications I	3	1.5	<u>Engineering 2133</u> - Communications I	3 1.5
	<u>Engineering 2258</u> - Electric Machines I	3	1.5	<u>Engineering 2258</u> - Electric Machines I	3 1.5
	<u>Engineering 2438</u> - Control Systems	3	1.5	<u>Engineering 2438</u> - Control Systems	3 1.5
	<u>Engineering 2451</u> - Electrical Power Systems	3	1.5	<u>Engineering 2451</u> - Electrical Power Systems	3 1.5

Field Name	Previous Value			New Value			Culture
	Engineering_3015** - Engineering Thermodynamics and Heat Transfer	4	0	Engineering_3015** - Engineering Thermodynamics and Heat Transfer	4	0	
	Mathematics_2050 - Applied Analysis I	3	1	Mathematics_2050 - Applied Analysis I	3	1	
		22	8.5		22	8.5	
	Second Year: Winter Term	Lec	Lab	Second Year: Winter Term	Lec	Lab	
	Engineering_2332 - Engineering Management and Economics	3	0	Engineering_2332 - Engineering Management and Economics	3	0	
	Engineering_2430 - Electrical Control Devices & Applications	3	1.5	Engineering_2430 - Electrical Control Devices & Applications	3	1.5	
	Engineering_2439 - Communications II	3	1.5	Engineering_2439 - Communications II	3	1.5	
	Engineering_2453 - Computer Communications and Networking	3	1.5	Engineering_2453 - Computer Communications and Networking	3	1.5	
	Engineering_2939 - Technology Project	3	0	Engineering_2939 - Technology Project	3	0	
	Engineering_3014** - Engineering Chemistry	4	0	Engineering_3014** - Engineering Chemistry	4	0	
	Mathematics_2070 - Applied Analysis II	3	1	Mathematics_2070 - Applied Analysis II	3	1	
		22	5.5		22	5.5	
	<i>**This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.</i>			<i>**This course is also offered in the Summer Transition Program and is not required for the Engineering Technology Diploma.</i>			
	Note: At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Electrical Engineering.			Note: At this point, all students are required to apply to graduate with an Engineering Technology Diploma in Electrical Engineering.			
	Third Year: Fall Term	Lec	Lab	Third Year: Fall Term	Lec	Lab	
	Engineering_3013 - Circuit Theory and Design I	3	1.5	Engineering_3013 - Circuit Theory and Design I	3	1.5	
	Engineering_3334 - Advanced Controls I	3	1.5	Engineering_3334 - Advanced Controls I	3	1.5	
	Engineering_4032 - Materials Science	3	1.5	Engineering_4032 - Materials Science	3	1.5	
	Mathematics_3012 - Vector Analysis and Power Series	3	1	Mathematics_3012 - Vector Analysis and Power Series	3	1	
	Mathematics_4030 - Probability and Statistics	3	0	Mathematics_4030 - Probability and Statistics	3	0	
	One complementary studies* elective course	3	0	One complementary studies* elective course	3	0	
		18	5.5		18	5.5	
	Third Year: Winter Term	Lec	Lab	Third Year: Winter Term	Lec	Lab	
	Engineering_3336 - Economics Analysis for Engineers	3	0	Engineering_3336 - Economics Analysis for Engineers	3	0	
	Engineering_3430 - Computer Circuits Design	3	1.5	Engineering_3430 - Computer Circuits Design	3	1.5	
	Mathematics_3032 - Complex Functions and PDEs	3	1	Mathematics_3032 - Complex Functions and PDEs	3	1	
	Engineering_3558 - Numerical Methods and Modeling	3	1.5	Engineering_3558 - Numerical Methods and Modeling	3	1.5	
	Two engineering elective courses	6	3	Two engineering elective courses	6	3	
	One complementary studies* elective course	3	0	One complementary studies* elective course	3	0	
		21	7.5		21	7.5	

Field Name	Previous Value	New Value			Culture
	Fourth Year: Fall Term	Lec	Lab	Fourth Year: Fall Term	Lec Lab
	Engineering 4053 - Communications Systems	3	1.5	Engineering 4053 - Communications Systems	3 1.5
	Engineering 4054 - VLSI Circuit Design	3	1.5	Engineering 4054 - VLSI Circuit Design	3 1.5
	Engineering 4136 - Analog Integrated Circuits	3	1.5	Engineering 4136 - Analog Integrated Circuits	3 1.5
	Engineering 4258 - Electric Machines II	3	1.5	Engineering 4258 - Electric Machines II	3 1.5
	Engineering 4969 - Degree Project	3	0	Engineering 4969 - Degree Project	3 0
	Physics 3211 - Electromagnetic Theory	3	1	Physics 3211 - Electromagnetic Theory	3 1
	One complementary studies* elective course	3	0	One complementary studies* elective course	3 0
		21	7		21 7
	Fourth Year: Winter Term	Lec	Lab	Fourth Year: Winter Term	Lec Lab
	Engineering 4539 - Professional Practice and Law	3	0	Engineering 4539 - Professional Practice and Law	3 0
	Engineering 4632 - Digital Signal Processing	3	1.5	Engineering 4632 - Digital Signal Processing	3 1.5
	Engineering 4969 - Degree Project	3	0	Engineering 4969 - Degree Project	3 0
	Two engineering elective courses	6	0	Two engineering elective courses	6 0
	One complementary studies* elective course	3	0	One complementary studies* elective course	3 0
		18	1.5		18 1.5
	ELECTRICAL ENGINEERING ELECTIVE COURSES	ELECTRICAL ENGINEERING ELECTIVE COURSES			
	Electrical 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.	Electrical 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.			
	Engineering 0138 - Advanced Controls Engineering 0150 - Microwave Circuits and Design Engineering 0339 - Process Optimization Engineering 0438 - Power System Analysis and Design Engineering 0531 - Topics in Electrical Engineering Engineering 0550 - Optical Communications Engineering 0554 - Power Electronics Engineering 0573 - Fuzzy Logic Expert Systems Engineering 0578 - Wireless Communications Engineering 0654 - Advanced Electronic Devices	Engineering 0138 - Advanced Controls Engineering 0150 - Microwave Circuits and Design Engineering 0438 - Power System Analysis and Design Engineering 0531 - Topics in Electrical Engineering Engineering 0550 - Optical Communications Engineering 0554 - Power Electronics Engineering 0573 - Fuzzy Logic Expert Systems Engineering 0578 - Wireless Communications Engineering 0654 - Advanced Electronic Devices			
	*For information regarding complementary studies elective courses, contact Department Chair.	*For information regarding complementary studies elective courses, contact Department Chair.			
	Note: On the advice of the Chair of the Electrical Engineering Department students may interchange the position of complementary studies electives and Engineering electives from one year to another in their program to accommodate course selection.	Note: On the advice of the Chair of the Electrical Engineering Department students may interchange the position of complementary studies electives and Engineering electives from one year to another in their program to accommodate course selection.			

Date: 08/23/2013, 09:47 AM
User: David Barnett
Workflow Step: Dean and Faculty Council Review Stage
Workflow Action: Approve
 - No changes were made.