

DEPARTMENT OF ELECTRICAL ENGINEERING
and
SCHOOL OF MANAGEMENT
University at Buffalo

**JOINT FIVE-YEAR PROGRAM
BS (Electrical Engineering)/MBA**

The Department of Electrical Engineering and the School of Management offer a five-year program leading to a joint Bachelors degree in electrical engineering and Masters degree in business administration. This program reduces by one year the usual pattern of a four-year undergraduate degree and a two-year MBA program. At completion, you will be awarded a BS diploma and an MBA diploma, with a transcript notation that these degrees were awarded as part of a combined degree program.

Students wishing to pursue the dual program should take the GMAT and apply to the MBA program early during their junior year. Admissions will be limited to students who can satisfy the entrance requirements for the MBA program.

Each candidate must meet all the degree requirements of each program, except for the reduction in the total credit hours required for the usual pattern of a four-year BS (electrical engineering) degree and a two-year MBA degree.

Applications for the joint five-year program can be found on the web at www.mgt.buffalo.edu. For additional information or to set up an appointment, please contact:

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School of Management
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(716)645-7853
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BS/MBA ELECTRICAL ENGINEERING

Course Guide for students starting MBA classes Fall 2016

(New EE curriculum beginning Fall 2013)

First Year

Fall Semester	Credit Hrs	Spring Semester	Credit Hrs.
MTH 141 Calculus I	4	MTH 142 Calculus II	4
CHE 107 Chemistry I ^	4	PHY 107 Physics I	4
EAS 140 Engineering Principles	3	EE 101 Basic Electronics or Technical Elective ***	3-4
ENG 101 or 102 Writing **	3	ENG 201 Adv. Writing or Humanities **	3
General Education %	3	EAS 202 Engin Impact on Society ^^	1
Total Credits	17	General Education %	3
Library Skills *		Total Credits	18-19

Second Year

MTH 306 Differ. Equations	4	MTH 241 Calculus III	4
PHY 108 Physics II	4	PHY 207 Physics III	4
PHY 158 Physics II Lab	1	PHY 257 Physics III lab	1
EE 202 Circuit Analysis I	4	EE 205 Signals & Systems	4
EE 278 Digital Principles	3	EAS 230 Engineering Computations	3
Total Credits	16	General Education %	3
		Total Credits	19

Third Year

EE 310 Electronic Devices & Circuits I	3	EE 311 Electronic Devices & Circuits II	3
EE 352 Intro Elect. Lab	3	EE 353 Electr Circ. Lab	3
EE 305 Applied Probability	4	EE 379 Embedded Systems & Appl	3
EE 324 Electromag. & Waves	4	EE 336 Fund. of Enery Sys.	3
General Education %	3	EE 383 Comm. Systems	3
Total Credits	17	Total Credits	15

MBA applications due by May 1 of third year

Fourth Year

First Semester MBA Core @	15	Second Semester MBA Core @	10
EE 478 VHDL	3	MBA Electives @	3
Total Credits	18	EE/CSE Technical Elective ***	3
		Total Credits	16

Fifth Year

MBA Electives - may include internship @	12	Fourth Semester MBA Core @	2
EE 408 Senior Seminar	1	MBA Electives @	6
EE/CSE Technical Elective ***	3	EE 409 Senior Design Implem.	2
Total Credits	16	General Education	3
		Total Credits	13

- * Library Skills Test is required for all students entering UB in Fall of 1997 and thereafter.
See the Library Skills website at <http://ublib.buffalo.edu/libraries/units/ugl> or go to room 107 in UGL.
- ** ENG 101 and ENG 201 or ENG 102 and Humanities (Writing Skills Requirement) as determined by placement: SAT/ACT, AP, TOEFL, or transfer credit. SAT verbal 400-570 = ENG 101 and then 201, 580-720 = ENG 102 and Humanities (%), 730-800 = Exempt from Writing Skills but need Humanities (%).
- ^ CHE 101-102 OR CHE 105-106 may be substituted for CHE 107-108.
- ^^ EAS 202 Engineering Impact on Society is required for students entering UB Engineering as freshman beginning with the fall 2011 catalog year.
- *** Engineering Technical Electives (minimum 9 credits). A total of 3 technical electives is required. At least two must be upper division technical electives. No more than one may be a lower division technical elective such as EE 101. In addition, at least two upper division technical electives must be EE or CSE courses, or MAE 340 Systems Analysis, MAE 443 Continuous Control Systems, or MAE 444 Digital Control Systems. The free elective and 3 unrestricted TEs required in the standard BS degree are satisfied by the MBA core when the requirements for the combined degree are fulfilled.
- % World Civilizations I and II, American Pluralism or approved cognate, Social & Behavioral Science, Arts, and Humanities (if not required to complete ENG 101-201 sequence).
- @ Contact the School of Management for advisement on core MBA requirements and electives.
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BS/MBA ELECTRICAL ENGINEERING

Course Guide for students starting MBA classes Fall 2014 - Spring 2015

(EE curriculum for Fall 2011 and Fall 2012 FR)

First Year

Fall Semester	Credit Hrs	Spring Semester	Credit Hrs.
MTH 141 Calculus I	4	MTH 142 Calculus II	4
CHE 107 Chemistry I ^	4	PHY 107 Physics I	4
EAS 140 Engineering Principles	3	EE 101 Basic Electronics or Technical Elective ***	3-4
ENG 101 or 102 Writing **	3	ENG 201 Adv. Writing or Humanities **	3
General Education %	3	EAS 202 Engin Impact on Society ^^	1
Library Skills *	Total Credits 17	General Education %	3
		Total Credits	18-19

Second Year

MTH 306 Differ. Equations	4	MTH 241 Calculus III	4
PHY 108 Physics II	4	PHY 207 Physics III	4
PHY 158 Physics II Lab	1	PHY 257 Physics III lab	1
EE 202 Circuit Analysis I	4	EE 205 Signals & Systems	4
EE 278 Digital Principles	3	EAS 230 Engineering Computations	3
Total Credits	16	General Education %	3
		Total Credits	19

Third Year

EE 310 Electronic Devices & Circuits I	3	EE 311 Electronic Devices & Circuits II	3
EE 352 Intro Elect. Lab	3	EE 353 Electr Circ. Lab	3
EE 305 Appl. Prob. (note new dept abbrev)	4	EE 379 or CSE 379 ^^	3
EE 324 Electromag. & Waves	4	EE 336 Fund. Of Enery Sys. ^^	3
General Education %	3	EE 383 Comm. Systems	3
Total Credits	17	Total Credits	15

MBA applications due by May 1 of third year

Fourth Year

First Semester MBA Core @	15	Second Semester MBA Core @	10
EE 478 or CSE 380 ^^	3	MBA Electives @	3
Total Credits	18	EE/CSE Technical Elective ***	3
		Total Credits	16

Fifth Year

MBA Electives - may include internship @	12	Fourth Semester MBA Core @	2
EE 408 Senior Seminar	1	MBA Electives @	6
EE/CSE Technical Elective ***	3	EE 409 Senior Design Implem.	2
Total Credits	16	General Education	3
		Total Credits	13

- ^^ As of spring 2013, continuing EE majors have the option of completing EE 379 instead of CSE 379 (both still offered spring only) and an option to complete EE 478 (offered fall only) instead of CSE 380 (offered spring only). EE 436 is now EE 336 (offered in spring only).
- *** Engineering Technical Electives (minimum 9 credits). A total of 3 technical electives is required. At least two must be upper division technical electives. No more than one may be a lower division technical elective such as EE 101. In addition, at least two upper division technical electives must be EE or CSE courses, or MAE 340 Systems Analysis, MAE 443 Continuous Control Systems, or MAE 444 Digital Control Systems. The free elective and 3 unrestricted TEs required in the standard BS degree are satisfied by the MBA core when the requirements for the combined degree are fulfilled.
- % World Civilizations I and II, American Pluralism or approved cognate, Social & Behavioral Science, Arts, and Humanities (if not required to complete ENG 101-201 sequence).
- @ Contact the School of Management for advisement on core MBA requirements and electives.
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BS/MBA ELECTRICAL ENGINEERING

Course Guide for students starting MBA classes Fall 2012 or later
(Old EE Requirements: Started JR YR EE courses Fall 2011 or Fall 2012)

First Year

Fall Semester	Credit Hrs	Spring Semester	Credit Hrs.
MTH 141 Calculus I	4	MTH 142 Calculus II	4
CHE 107 Chemistry I ^^	4	PHY 107 Physics I	4
EAS 140 Engineering Principles	3	EE 101 Basic Electronics or Technical Elective ***	3-4
ENG 101 or 102 Writing **	3	ENG 201 Adv. Writing or Humanities **	3
General Education %	3	General Education %	3
Total Credits		Total Credits	
17		17-18	
Library Skills *			

Second Year

MTH 306 Differ. Equations	4	MTH 241 Calculus III	4
PHY 108 Physics II	4	PHY 207 Physics III	4
PHY 158 Physics II Lab	1	PHY 257 Physics III lab	1
EAS 207 Statics	3	EE 203 Circuit Analysis II	4
EE 202 Circuit Analysis I	4	EAS 230 Engineering Computations	3
Total Credits		Total Credits	
16		19	
		General Education %	
		3	

Third Year

EE 310 Electronics Devices & Circuits I	3	EE 311 Electronics Devices & Circuits II	3
EE 352 Intro Elect. Lab	3	EE 353 Electr Circ. Lab	3
EE 378 Digital Principles	3	EE 379 or CSE 379 ^^	3
EE Requirement I ^	4	CSE 380 (sp) or EE 478 (fall) ^^	3
General Education %	3	EE Requirement II ^	4
Total Credits		Total Credits	
16		16	
MBA applications due by May 1 of third year			

Fourth Year

First Semester MBA Core @	15	Second Semester MBA Core @	10
EE Requirement III ^	4	MBA Electives @	3
		EE/CSE Technical Elective ***	3
Total Credits		Total Credits	
19		16	

Fifth Year

MBA Electives - may include internship @	12	Fourth Semester MBA Core @	2
EE 408 Senior Seminar	1	MBA Electives @	6
EE/CSE Technical Elective ***	3	Technical Elective with Design	3
Total Credits		Total Credits	
16		14	
		General Education	
		3	

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- ^ EE Requirements I, II and III are fulfilled by taking EAS 305, EE 303, and EE 324 in any order.
- ^^ As of spring 2013, continuing EE majors have the option of completing EE 379 instead of CSE 379 (both still offered spring only) and an option to complete EE 478 (offered fall only) instead of CSE 380 (offered spring only).
- ^^^ CHE 101-102 OR CHE 105-106 may be substituted for CHE 107-108.
- *** Engineering Technical Electives (minimum 12 credits). A total of 4 technical electives is required. At least three must be upper division technical electives. No more than one may be a lower division technical elective such as EE 101. At least one of the upper division technical electives must be a course with significant design content from an approved list. In addition to the one technical elective with significant design content at least two other upper division technical electives must be EE courses or CSE courses or MAE 340 Systems Analysis, MAE 443 Continuous Control Systems, or MAE 444 Digital Control Systems. The free elective, two unrestricted TE's, and additional TE with significant design required in the standard BS degree are satisfied by the MBA core when the requirements for the combined degree are fulfilled.
- % World Civilizations I and II, American Pluralism or approved cognate, Social & Behavioral Science, Arts, and Humanities (if not required to complete ENG 101-201 sequence).
- @ Contact the School of Management for advisement on core MBA requirements and electives.

BS/MBA ELECTRICAL ENGINEERING

Course Guide for students starting MBA classes prior to Fall 2012
(Old EE Requirements)

First Year

Fall Semester	Credit Hrs	Spring Semester	Credit Hrs.
MTH 141 Calculus I	4	MTH 142 Calculus II	4
CHE 107 Chemistry I ^^	4	PHY 107 Physics I	4
EAS 140 Engineering Principles	3	EE 101 Basic Electronics or Technical Elective ***	3-4
ENG 101 or 102 Writing **	3	ENG 201 Adv. Writing or Humanities **	3
General Education %	3	General Education %	3
Total Credits	17	Total Credits	17-18
Library Skills *			

Second Year

MTH 306 Differ. Equations	4	MTH 241 Calculus III	4
PHY 108 Physics II	4	PHY 207 Physics III	4
PHY 158 Physics II Lab	1	PHY 257 Physics III lab	1
EAS 207 Statics	3	EE 203 Circuit Analysis II	4
EE 202 Circuit Analysis I	4	EAS 230 Engineering Computations	3
Total Credits	16	General Education %	3
		Total Credits	19

Third Year

EE 310 Electronics Devices & Circuits I	3	EE 311 Electronics Devices & Circuits II	3
EE 352 Intro Elect. Lab	3	EE 353 Electr Circ. Lab	3
EE 378 Digital Principles	3	CSE 379 Microproc./Microcomp.	3
EE Requirement I ^	4	CSE 380 Microproc. Lab	3
General Education %	3	EE Requirement II ^	4
Total Credits	16	Total Credits	16
MBA applications due by May 1 of third year			

Fourth Year

MGA 604 Financial Analysis & Reporting	3	MGO 641 Strategic Management	3
MGB 601 Behav & Organiz Concepts	3	MGM 625 Marketing Management	3
MGT 601 Ethics & Corporate Governance	1.5	MGO 630 Operations & Service Mgt	3
MGF 631 Financial Management	1.5	MGA 609 Management Accounting	3
EE 408 Senior Seminar	1	MGF 631 Financial Management	1.5
EE Requirement III ^	4	MGG 635 Business Communications	1.5
Technical Elective with Design ***	3-4	EE/CSE Technical Elective ***	3
Total Credits	17-18	Total Credits	18

Fifth Year

MBA Practicum @	3	MBA Elective @	3
MGE 601 Economics for Managers	3	MBA Elective @	3
MBA Elective @	3	MBA Elective @	3
MBA Elective @	3	MBA Elective @	3
EE/CSE Technical Elective ***	3	General Education	3
Total Credits	15	Total Credits	15

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- ^ EE Requirements I, II and III are fulfilled by taking EAS 305, EE 303, and EE 324 in any order.
- ^^ CHE 101-102 OR CHE 105-106 may be substituted for CHE 107-108.
- *** Engineering Technical Electives (minimum 12 credits). A total of 4 technical electives is required. At least three must be upper division technical electives. No more than one may be a lower division technical elective such as EE 101. At least one of the upper division technical electives must be a course with significant design content from an approved list. In addition to the one technical elective with significant design content at least two other upper division technical electives must be EE courses or CSE courses or MAE 340 Systems Analysis, MAE 443 Continuous Control Systems, or MAE 444 Digital Control Systems. The free elective, two unrestricted TE's, and additional TE with significant design required in the standard BS degree are satisfied by the MBA core when the requirements for the combined degree are fulfilled.
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- @ Contact the School of Management for advisement on MBA electives.