

B.S. IN MUSIC ENGINEERING TECHNOLOGY

Introduction

The mission of the Music Engineering Technology program is to:

1. Provide the highest quality education in the field of music engineering.
2. Promote advancements in the fidelity and creativity of music recording, production and reproduction.
3. Promote advancements in the invention, design and implementation of audio hardware and software.

The goals of the Music Engineering Technology program are to:

1. Further enhance the program's national and international stature.
2. Obtain teaching infrastructure and resources needed to provide contemporary education in the field of music engineering technology.
3. Ensure that curricular offerings are current and able to educate students in new and future theory and practice.
4. To help graduates find professional career positions.

Educational Objectives

- Understanding the theoretical basis of sound recording, processing and reproduction.
- Understanding the practice techniques used in sound recording, processing and reproduction.
- Designing and implementing original audio hardware and/or software.
- Understanding the principles of computer science (Bachelor of Music) or electrical engineering (Bachelor of Science).

The Music Engineering Technology curriculum is designed for musicians interested in pursuing a career in music recording, audio hardware and software design, and related professions in the audio, audio-video, multimedia, and internet industries. The program is interdisciplinary in nature; it includes courses in music, music engineering, computer science, electrical engineering, and mathematics. This program includes a minor in Electrical Engineering or a double major in Computer Science. Freshman students are expected to enroll in calculus, which carries a prerequisite of Trigonometry and Analytical Geometry. Prospective students are expected to have a strong background in music performance and in mathematics.

Curriculum Requirements with Computer Engineering Minor

Code	Title	Credit Hours
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 106 or ENG 106	First-Year Writing II Writing About Literature and Culture	3
Quantitative Skills:		
MTH 161	Calculus I ³	4
Areas of Knowledge:		
Arts & Humanities Cognate (9 credits) (fulfilled through the major)		
People & Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the Computer Engineering minor)		
Additional Requirements		
UMX 100	The University of Miami Experience	0
Advanced Writing and Communication Skills (3 courses) See details below.		
Experiential Music Curriculum Core Courses MUE ¹		
MMI 13	Music Engineering Forum (8 semesters)	8
MXX XX1 (Level 1)	Principal Instrument Lesson & Studio Class (semesters 1-4, 2 credit hours)	8
MXX XX3 (Level 3)	Principal Instrument Lesson & Studio Class (semesters 5-6, 2 credit hours)	4
MTC 140 or MSJ 140 or MMI 140	Experiential Musicianship I Experiential Musicianship I Experiential Musicianship I	3
MTC 141	Experiential Musicianship II	3

or MSJ 141	Experiential Musicianship II	
or MMI 141	Experiential Musicianship II	
MTC 240	Experiential Musicianship III	3
or MSJ 240	Experiential Musicianship III	
or MMI 240	Experiential Musicianship III	
MTC 241	Experiential Musicianship IV	3
or MSJ 241	Experiential Musicianship IV	
or MMI 241	Experiential Musicianship IV	
MTC 107	Skills Lab I (co-requisite MTC 140/MSJ 140/MMI 140)	1
or MSJ 107	Skills Lab I	
or MMI 107	Skills Lab I	
MTC 108	Skills Lab II (co-requisite MTC 141/MSJ 141/MMI 141)	1
or MSJ 108	Skills Lab II	
or MMI 108	Skills Lab II	
MTC 207	Skills Lab III (co-requisite MTC 240/MSJ 240/MMI 240)	1
or MSJ 207	Skills Lab III	
or MMI 207	Skills Lab III: American Song Traditions	
MTC 208	Skills Lab IV (co-requisite MTC 241/MSJ 241/MMI 241)	1
or MSJ 208	Skills Lab IV	
or MMI 208	Skills Lab IV: American Song Traditions	
MKP 140	Keyboard Studies I (MSJ 103 if enrolled in MSJ theory)	1
MKP 141	Keyboard Studies II (MSJ 104 if enrolled in MSJ theory)	1
MCY 140	Experiencing Music	3
MCY 141	European Musical Traditions (AWC)	3
MMI 151	Electronic Production Technologies	3
MMI 310	Music Business and Entrepreneurship for Musicians	3
MIP/MSJ/MMI XXX	Ensembles (semesters 1-6, 1 credit hour)	6
Total credits for EMC Core courses = 48		
Courses in the MUE Major		
MMI 220	Introduction to Music Recording	3
MMI 160	Ensemble Recording Workshop I	3
MMI 161	Ensemble Recording Workshop II	3
MMI 401	Audio Electronics (AWC)	3
MMI 436	Audio for Visual and Interactive Media	3
MMI 502	Digital Audio Theory	3
MMI 503	Audio Software Development I	3
Select two of the following Advanced Music Engineering Electives: Students may only take a maximum of 3 credits in MMI 460 or MMI 465.		
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) 2	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	
MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
MMI 501	Transducer Theory	3
MMI 410	Music Engineering Capstone Project (AWC)	3

PHY 221	University Physics I	3
MTH 162	Calculus II ³	4
Computer Engineering Minor		
ECE 118	Introduction to Programming (required minor)	3
ECE 201	Electrical Circuit Theory	3
ECE 203	Electrical Circuits Laboratory	1
ECE 218	Data Structures (required minor)	3
ECE 211	Logic Design	3
ECE 212	Processors: Hardware, Software, and Interfacing	3
Elective in Computer Engineering		3
Elective in Computer Engineering		3
Total Credit Hours		137

¹ EMC core courses require a grade of "C" or higher. Lessons require a grade of "B- or higher.

² MMI 460 Recital Recording and Sound Reinforcement must be taken a minimum of 3 times to satisfy the Advanced MUE elective requirement.

³ Must complete calculus by end of sophomore year.

* A minimum 2.7 GPA is required to remain in the Music Engineering Technology program.

** A minimum 2.0 GPA is required in all Engineering courses taken.

Curriculum Requirements with Electrical Engineering Minor

Code	Title	Credit Hours
General Education Requirements		
Written Communication Skills:		
WRS 105	First-Year Writing I	3
WRS 106	First-Year Writing II	3
Quantitative Skills:		
MTH 161	Calculus I ³	4
Areas of Knowledge:		
Arts & Humanities Cognate (9 credits) (fulfilled through the major)		
People & Society Cognate		9
STEM Cognate (9 credits) (fulfilled through the Electrical Engineering minor)		
Additional Requirements		
UMX 100	The University of Miami Experience	0
	Advanced Writing and Communication Skills (3 courses) See details below.	0
Experiential Music Curriculum Core Courses MUE¹		
MMI 13	Music Engineering Forum (8 semesters)	8
MXX XX1 (Level 1)	Principal Instrument Lesson & Studio Class (semesters 1-4, 2 credit hours)	8
MXX XX3 (Level 3)	Principal Instrument Lesson & Studio Class (semesters 5-6, 2 credit hours)	4
MTC/MSJ/MMI 140	Experiential Musicianship I	3
MTC/MSJ/MMI 141	Experiential Musicianship II	3
MTC/MSJ/MMI 240	Experiential Musicianship III	3
MTC/MSJ/MMI 241	Experiential Musicianship IV	3
MTC/MSJ/MMI 107	Skills Lab I (co-requisite MTC 140/MSJ 140/MMI 140)	1
MTC/MSJ/MMI 108	Skills Lab II (co-requisite MTC 141/MSJ 141/MMI 141)	1
MTC/MSJ/MMI 207	Skills Lab III (co-requisite MTC 240/MSJ 240/MMI 240)	1
MTC/MSJ/MMI 208	Skills Lab IV (co-requisite MTC 241/MSJ 241/MMI 241)	1
MKP 140	Keyboard Studies I (MSJ 103 if enrolled in MSJ theory)	1
MKP 141	Keyboard Studies II (MSJ 104 if enrolled in MSJ theory)	1
MCY 140	Experiencing Music	3
MCY 141	European Musical Traditions (AWC)	3

MMI 151	Electronic Production Technologies	3
MMI 310	Music Business and Entrepreneurship for Musicians	3
MIP/MSJ/MMI XXX	Ensembles (semesters 1-6, 1 credit hour)	6
Total credits for EMC Core courses = 48		
Courses in the MUE Major		
MMI 220	Introduction to Music Recording	3
MMI 160	Ensemble Recording Workshop I	3
MMI 161	Ensemble Recording Workshop II	3
MMI 401	Audio Electronics (AWC)	3
MMI 436	Audio for Visual and Interactive Media	3
MMI 502	Digital Audio Theory	3
MMI 503	Audio Software Development I	3
Select two of the following Advanced Music Engineering Electives: Students may only take a maximum of 3 credits in MMI 460 or MMI 465.		
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) 2	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	
MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
MMI 501	Transducer Theory	3
MMI 410	Music Engineering Capstone Project (AWC)	3
MTH 162	Calculus II ³	4
PHY 221	University Physics I	3
ECE 118	Introduction to Programming	3
ECE 201	Electrical Circuit Theory (required minor)	3
ECE 203	Electrical Circuits Laboratory (required minor)	1
ECE 202	Electronics I (required minor)	3
ECE 218	Data Structures	3
Elective in Electrical Engineering		3
Elective in Electrical Engineering		3
Elective in Electrical Engineering		3
Total Credit Hours		129

¹ EMC core courses require a grade of "C" or higher. Lessons require a grade of "B-" or higher.

² MMI 460 Recital Recording and Sound Reinforcement must be taken a minimum of 3 times to satisfy the Advanced MUE elective requirement.

³ Must complete calculus by end of sophomore year.

* A minimum 2.7 GPA is required to remain in the Music Engineering Technology program.

** A minimum 2.0 GPA is required in all Engineering courses taken.

Advanced Writing and Communication Skills

Courses

All students are required to successfully complete 3 Advanced Writing and Communication Skills (AWC) courses. Student degree requirements will include courses that meet the desired communication outcomes in evaluated and revised writing, speaking, stage presence, and audience engagement.

All music students will successfully complete:

1. MCY 141 Musical Trends and Traditions, which will include substantial evaluated and revised writing components.
MMI 410 Music Engineering Capstone Project, which will include evaluated communication skills in attracting an audience, engaging an audience during performance, and preparing program notes or similar media as appropriate to the medium/venue.
MMI 401 Audio Electronics, which will include discipline specific communication skills.

Assessment

There will be at least 2 specific assessments in each Advanced Communications Skills course for communications or writing equivalent to 4000 words, evaluated and revised.

Plan of Study with Computer Engineering Minor

Year One		Credit Hours
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 140, MSJ 140, or MMI 140	Experiential Musicianship I or Experiential Musicianship I or Experiential Musicianship I	3
MTC 107, MSJ 107, or MMI 107	Skills Lab I or Skills Lab I or Skills Lab I	1
MKP 140 or MSJ 103	Keyboard Studies I or Jazz Piano I	1
MMI 220	Introduction to Music Recording	3
WRS 105	First-Year Writing I	3
MTH 161	Calculus I ²	4
UMX 100	The University of Miami Experience	0
Ensemble ¹		1
Credit Hours		19
Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 141, MSJ 141, or MMI 141	Experiential Musicianship II or Experiential Musicianship II or Experiential Musicianship II	3
MTC 108, MSJ 108, or MMI 108	Skills Lab II or Skills Lab II or Skills Lab II	1
MKP 141 or MSJ 104	Keyboard Studies II or Jazz Piano II	1
MMI 160	Ensemble Recording Workshop I	3
MTH 162	Calculus II	4
WRS 106 or ENG 106	First-Year Writing II or Writing About Literature and Culture	3
Ensemble ¹		1
Credit Hours		19
Year Two		
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 240, MSJ 240, or MMI 240	Experiential Musicianship III or Experiential Musicianship III or Experiential Musicianship III	3
MTC 207, MSJ 207, or MMI 207	Skills Lab III or Skills Lab III or Skills Lab III: American Song Traditions	1

ECE 118	Introduction to Programming (required minor)	3
ECE 201	Electrical Circuit Theory	3
PHY 221	University Physics I	3
Ensemble		1
Credit Hours		17
Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 241, MSJ 241, or MMI 241	Experiential Musicianship IV or Experiential Musicianship IV or Experiential Musicianship IV	3
MTC 208, MSJ 208, or MMI 208	Skills Lab IV or Skills Lab IV or Skills Lab IV: American Song Traditions	1
MMI 161	Ensemble Recording Workshop II	3
MMI 401	Audio Electronics	3
ECE 203	Electrical Circuits Laboratory	1
ECE 218	Data Structures (required minor)	3
Ensemble		1
Credit Hours		18
Year Three		
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MCY 140	Experiencing Music	3
MMI 151	Electronic Production Technologies	3
MMI 502	Digital Audio Theory	3
ECE 211	Logic Design (required minor)	3
Ensemble		1
Credit Hours		16
Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MCY 141	European Musical Traditions	3
MMI 436	Audio for Visual and Interactive Media	3
MMI 503	Audio Software Development I	3
Elective in Computer Engineering		
Ensemble		1
Credit Hours		13
Year Four		
Fall		
MMI 13	Music Engineering Forum	1
MMI 310	Music Business and Entrepreneurship for Musicians	3
Select one of the following Advanced Music Engineering Electives:		3
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) ²	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	

MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
Elective in Computer Engineering		3
People & Society Cognate		3
People & Society Cognate		3
	Credit Hours	16
Spring		
MMI 13	Music Engineering Forum	1
MMI 410	Music Engineering Capstone Project	3
MMI 501	Transducer Theory	3
Select one of the following Advanced Music Engineering Electives:		3
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) ²	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	
MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
ECE 212	Processors: Hardware, Software, and Interfacing (required minor)	3
People & Society Cognate		3
	Credit Hours	16
	Total Credit Hours	134

² MMI 460 Recital Recording and Sound Reinforcement can be taken 3 times for a total of 3 credits.

³ Must complete calculus by end of sophomore year.

Plan of Study with Electrical Engineering Minor

Year One		Credit Hours
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 140, MSJ 140, or MMI 140	Experiential Musicianship I or Experiential Musicianship I or Experiential Musicianship I	3
MTC 107, MSJ 107, or MMI 107	Skills Lab I or Skills Lab I or Skills Lab I	1
MKP 140 or MSJ 103	Keyboard Studies I or Jazz Piano I	1
MTH 161	Calculus I ³	4
MMI 220	Introduction to Music Recording	3
WRS 105	First-Year Writing I	3
UMX 100	The University of Miami Experience	0
Ensemble		1
	Credit Hours	19
Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2

MTC 141, MSJ 141, or MMI 141	Experiential Musicianship II or Experiential Musicianship II or Experiential Musicianship II	3
MTC 108, MSJ 108, or MMI 108	Skills Lab II or Skills Lab II or Skills Lab II	1
MKP 141 or MSJ 104	Keyboard Studies II or Jazz Piano II	1
MMI 160	Ensemble Recording Workshop I	3
MTH 162	Calculus II ³	4
WRS 106 or ENG 106	First-Year Writing II or Writing About Literature and Culture	3
Ensemble		1
Credit Hours		19
Year Two		
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 240, MSJ 240, or MMI 240	Experiential Musicianship III or Experiential Musicianship III or Experiential Musicianship III	3
MTC 207, MSJ 207, or MMI 207	Skills Lab III or Skills Lab III or Skills Lab III: American Song Traditions	1
ECE 118	Introduction to Programming	3
ECE 201	Electrical Circuit Theory (required minor)	3
PHY 221	University Physics I	3
Ensemble		1
Credit Hours		17
Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MTC 241, MSJ 241, or MMI 241	Experiential Musicianship IV or Experiential Musicianship IV or Experiential Musicianship IV	3
MTC 208, MSJ 208, or MMI 208	Skills Lab IV or Skills Lab IV or Skills Lab IV: American Song Traditions	1
MMI 161	Ensemble Recording Workshop II	3
MMI 401	Audio Electronics	3
ECE 203	Electrical Circuits Laboratory (required minor)	1
Ensemble		1
Credit Hours		15
Year Three		
Fall		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MCY 140	Experiencing Music	3
MMI 151	Electronic Production Technologies	3
MMI 502	Digital Audio Theory	3
ECE 218	Data Structures	3
Ensemble		1
Credit Hours		16

Spring		
MMI 13	Music Engineering Forum	1
Principal Instrument/ Voice Lesson & Studio Class		2
MCY 141	European Musical Traditions	3
MMI 436	Audio for Visual and Interactive Media	3
MMI 503	Audio Software Development I	3
ECE 202	Electronics I (required minor)	3
Ensemble		1
Credit Hours		16
Year Four		
Fall		
MMI 13	Music Engineering Forum	1
MMI 310	Music Business and Entrepreneurship for Musicians	3
Select one of the following Advanced Music Engineering Electives:		3
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) ²	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	
MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
Electrical Engineering Elective		3
People & Society Cognate		3
People & Society Cognate		3
Credit Hours		16
Spring		
MMI 13	Music Engineering Forum	1
MMI 410	Music Engineering Capstone Project	3
Select one of the following Advanced Music Engineering Electives:		3
MMI 361	Acoustics	
MMI 460	Recital Recording and Sound Reinforcement (Recording Services) ²	
MMI 465	Internship in Music Engineering	
MMI 504	Audio Software Development II	
MMI 505	Current Trends in Music Engineering I	
MMI 506	Current Trends in Music Engineering II	
MMI 508	Current Trends in Music Engineering III	
MMI 510	Computational Psychoacoustics	
MMI 511	Current Trends in Music Engineering IV	
MMI 521	Timbral Ear Training	
CCA 353	Post Production Sound Editing and Design	
MMI 501	Transducer Theory	3
Electrical Engineering Minor Elective		3
People & Society Cognate		3
Credit Hours		16
Total Credit Hours		134

² MMI 460 Recital Recording and Sound Reinforcement can be taken 3 times for a total of 3 credits.

³ *Must complete calculus by end of sophomore year.*

Mission

The mission of the Music Engineering Technology program is to:

- Provide the highest quality education in the field of music engineering.
- Promote advancements in the fidelity and creativity of music recording, production and reproduction.
- Promote advancements in the invention, design and implementation of audio hardware and software.

Goals

- Understanding the theoretical basis of sound recording, processing and reproduction.
- Understanding the practice techniques used in sound recording, processing and reproduction.
- Designing and implementing original audio hardware and/or software.
- Understanding the principles of computer science (Bachelor of Music) or electrical engineering (Bachelor of Science).

Student Learning Outcomes

- Students will use problem solving skills to find a solution to a music engineering problem.
- Students will demonstrate theoretical understanding and practical techniques utilized in sound recording, processing and reproduction.
- Students will demonstrate understanding of electrical and computer engineering concepts and applications.