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Miami University

Department Of Engineering Technology Introduction

The Department of Engineering Technology at Miami University offers a bachelor's degree program, two associate degree programs, (**accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone (410) 347-7700**), and two certificate programs. The baccalaureate program offers majors in Electro-Mechanical or Mechanical Engineering Technology and is designed to enable graduates of the associate degree programs to complete the bachelor's degree by taking 65 additional credit hours. Majors available in the associate degree programs include Electrical and Computer Engineering Technology or Mechanical Engineering Technology. The certificate programs require 30-32 semester credit hours. The students who complete the certificate programs may continue directly into an associate degree program.

As a Miami student you will enjoy excellent faculty, modern facilities and other amenities associated with a fine university.

Engineering Technology students enjoy opportunities to CO-OP on an alternating or parallel basis. Students who elect to CO-OP will be required to attend classes during summer semester and the length of time to complete their degree will be extended by approximately one semester.

Graduates of the bachelor's degree program are technologists prepared to fill industrial positions in areas related to industrial automation, mechanical design & analysis, electronic instrumentation, testing, manufacturing, sales, and service. Graduates of the electrical and computer engineering technology program fill paraprofessional positions in electronic testing, network specialist, field service, electronic maintenance, and similar engineering technician roles. Mechanical engineering technology program graduates fill paraprofessional positions in computer aided drafting, quality control, computer aided manufacturing, design technician, product testing, maintenance, and similar engineering technician roles.

For more information about these programs or courses and seminars in the field of Engineering Technology, please contact:

Ayodele Abatan
Chair & Professor
Engineering Technology Department

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1601 University Boulevard
Hamilton, OH 45011
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Revised: July 2006

Definition of Engineering Technology

American Society for Engineering Education

Engineering Technology Council

June 1998

Engineering Technology is the profession in which knowledge of mathematics and natural sciences gained by higher education, experience, and practice is devoted primarily to the implementation, and extension of existing technology for the benefit of humanity.

Engineering Technology Education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, industrial processes, and operation functions.

University Statement Asserting Respect For Human Diversity
(Approved by Board of Trustees, June 8, 1990)

Miami University is a multi-cultural community of diverse racial, ethnic, and class backgrounds, national origins, religious and political beliefs, physical abilities, ages, genders, and sexual orientations. Our educational activities and everyday interactions are enriched by our acceptance of one another; and, as members of the University community, we strive to learn from each other in an atmosphere of positive engagement and mutual respect.

Because of the necessity to maintain this atmosphere, bigotry will not go unchallenged within this community. We will strive to educate each other on the existence and effects of racism, sexism, ageism, homophobia, religious intolerance, and other forms of invidious prejudice. When such prejudice results in physical or psychological abuse, harassment, intimidation, or violence against persons or property, we will not tolerate such behavior nor will we accept jest, ignorance, or substance abuse as an excuse, reason, or rationale for it.

All who work, live, study, and teach in the Miami community should be committed to these principles, which are an integral part of Miami's focus, goals, and mission.

(NOTE: This statement was adopted from one written and published by the University of Southern California, Student Affairs Division. Miami University is grateful to the University of Southern California for allowing us to use their statement as a model.)

Statement Of Good Teaching Practices

Every instructor is responsible for:

1. Informing his or her students at the beginning of the course of the objectives, content, assignments, policy on return of student work, and examination procedure in each course;
2. Explaining at the beginning of the course the methods by which the instructor determines the final grade in the course;
3. Insuring that all materials assigned are equally available to all students in the course;
4. Informing students of the generally accepted conclusion on the subject matter of the course when those conclusions differ from the conclusions of the instructor;
5. Giving adequate advance notice of major papers and major examinations in the course;
6. Providing assignments to permit students to benefit from evaluative experiences during the course;
7. Being fair and impartial in evaluating all student performances, i.e., evaluating all students according to common criteria;
8. Allowing students to review papers and examinations in a timely manner after they have been evaluated. This does not necessarily mean that students will be permitted to retain exams and/or papers.
9. Making oneself available for conferences during announced, regular office hours;
10. Treating students with courtesy and respect at all times. Courtesy and respect do not prohibit strong criticism directed at the student's academic errors and scholarly responsibilities.
11. Endeavoring to insure that the learning environment is free from sexism, racism, and other forms of prejudice that negatively influence student learning.
12. Adhering to the "Statement on Professional Ethics" of the *Miami University Policy and Information Manual* 4.03, including subsection B:

As a teacher, the professor encourages the free pursuit of learning in their students. The teacher holds before them the best scholarly standards of their discipline. They demonstrate respect for the student as an individual and adhere to their proper role as intellectual guide and counselor. Professors make every reasonable effort to foster honest academic conduct and to assure that their evaluation of students reflects their true merit. The faculty member respects the confidential nature of the relationship between professor and student. They avoid any exploitation of students for their private advantage and acknowledge significant assistance from them. The professor protects their academic freedom. No faculty member shall be obliged to make the academic work of students available for inspection by any third party in the absence of compulsory legal process or bona fide academic affairs or the express written consent of the student (Approved by University Senate February 22, 1983).

Miami University
Department of Engineering Technology

Earning A Living and Paying For College
(Updated Summer 2007)

How Much Will You Earn?

The following chart shows how much you can expect to earn with a high school diploma, associate degree, and baccalaureate degree.

Education Level	Gross Annual Income ¹
Associate Degree in Engineering Technology	\$37,000-60,000/year
Baccalaureate Degree in Engineering Technology	\$45,000-70,000/year
High School Diploma	\$13-25,000/year

¹ Salary ranges based on graduate surveys and Ohio Department of Labor

How Can You Pay for College?

- ◆ Loans, grants, and scholarships are available through Financial Aid office
- ◆ Engineering Technology offers some scholarships
- ◆ Co-op - this is the best way to pay for school. **You earn money while you learn--and we have more jobs than we can fill!** Through co-op you will find out quickly what you like and don't like about your field of study. The following information was provided by our co-op/placement office:

Average co-op wage for Engineering Technology	\$ 13.00/hour
Co-op gross income per SEMESTER (15 weeks@40 hrs/wk@\$10.00/hr.)	\$ 7,800.00/semester
Tuition Cost for a semester (full time rate, 2007-2008)	\$ 2,300.00/semester
Typical Cost for books and supplies (5 courses@\$90/course estimated)	\$ 450.00/semester

Co-op/Internship & Placement Office

The Co-op/Internship & Placement Office helps students, graduates and alumni find work related to their academic major. Co-op or intern students can arrange to work while taking classes or alternate semesters between work and classes. ENT 220 (Professional Practice) is the class you can enroll in to do a co-op. It can be taken for credit or no credit. If you are interested in doing a co-op, please contact:

Shelley Cassady, Ph.D.
Co-op/Internship & Placement Director
122 Rentschler Hall (Hamilton campus)
109 Johnston Hall (Middletown campus)
cassadss@muohio.edu
513-785-3113

Department and Program Objectives

The Department of Engineering Technology solicits considerable input from our constituencies (business and industry, advisory council, etc.) to determine the best structure for our programs. As such, the programs listed on the subsequent pages are a result of this input. These programs are designed to prepare graduate who have the abilities, skills, and attributes identified below.

Department Objectives:

All graduates of Miami's Engineering Technology programs are expected to be able to:

- Apply math and physics principles to the solution of engineering technical problems.
- Use applied skills to identify, evaluate, and solve complex technical problems.
- Use engineering computer software to facilitate engineering problem solving.
- Function effectively in team-oriented activities.
- Demonstrate the knowledge of expected standards of ethical and professional conduct.
- Verbally communicate ideas.
- Prepare well-written technical reports.

In addition, our graduates will have the necessary fundamentals to pursue life-long learning.

Program Objectives:

In addition to the department objectives listed above, graduates of each program are expected to also demonstrate proficiency in the program specific objectives listed below.

Electrical and Computer Engineering Technology (ECET—Associate Degree)

The ECET program produces graduates who:

- Analyze digital and analog electrical and electronic circuits, identify problem areas, and maintain these systems.
- Function effectively as electrical and computer engineering technicians in state and regional industries.

Electro-Mechanical Engineering Technology (EMET—Bachelor's Completion Program)

The EMET program produces graduates who:

- Possess the ability to apply theoretical knowledge to solve engineering technology problems associated with instrumentation and control systems.
- Are knowledgeable of modern applications in process control systems.

Mechanical Engineering Technology (MET—Associate and Bachelor's Degree)

The MET program produces graduates who:

- Are able to analyze and design complex mechanical components and systems.
- Are able to set-up experimental testing procedures and selectively utilize data to reinforce engineering concepts.
- Have a basic understanding of modern manufacturing methods used to facilitate the production of consumer products.
- Are able to effectively and efficiently manage engineering projects. (BS Only)

(Updated: July 22, 2005)

Miami University
Department of Engineering Technology

Grading Criteria

The Department of Engineering Technology (ENT) has adopted the following criteria for awarding the letter grades A, B, C, D, and F.

An instructor may use the +/- designators to indicate the high or low end of each level.

The ENT Department gratefully acknowledges the development of these descriptions by the CSA department and their generosity in letting us use them.

Grade	Criteria
A	complete mastery of essential facts, concepts, principles, and theories; the ability to effectively use support tools and to correctly apply this knowledge to a wide variety of problems; demonstration of excellence that meets and exceeds course requirements
B	very good knowledge of essential facts, concepts, principles, and theories; the ability to use support tools and to correctly apply this knowledge to the problems assigned in class
C	knowledge of essential facts, concepts, principles, and theories, but there are recognizable areas of deficiency; some ability to use support tools and the ability to correctly apply this knowledge to some of the problems assigned in class
D	some familiarity with the of essential facts, concepts, principles, and theories, but there are major areas of deficiency; little ability to properly use the support tools or to correctly apply this knowledge to the problems assigned in class
F	missing or seriously incomplete work; little evidence of knowledge of essential facts, concepts, principles, and theories; little evidence of ability to use support tools or to correctly solve problems assigned in class

ENT Department Standard for awarding letter grades: Each faculty member will use the following scale in assigning letter grades in their courses, with the following allowances:

- the end (or ends) of any range can be adjusted by 1 point (+/-)
- the assignment of the D- or F may deviate by a few points (2-3) from the values shown
- faculty may elect to not use +/- grades

Letter grade	Percentage range
A+	97-100%
A	93-96.9%
A-	90-92.9%
B+	87-89.9%
B	83-86.9%
B-	80-82.9%
C+	77-79.9%
C	73-76.9%
C-	70-72.9%
D+	67-69.9%
D	63-66.9%
D-	60-62.9%
F	below 60%

Adopted: December 6, 2004

BACCALAUREATE

DEGREE

PROGRAM

Miami University
Department of Engineering Technology
Bachelor of Science in Applied Science–Electro-Mechanical Concentration
Major in Engineering Technology
(Electro-Mechanical Concentration)

**Accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050,
Baltimore, MD 21202-4012 – telephone (410) 347-7700**

This bachelor's degree program is designed so that entering freshman may complete the program in four years of full-time college work or longer if part-time. While working toward the bachelor's degree, students will also earn an associate degree within one of two majors: electrical or mechanical engineering technology. Graduates of electrical, mechanical, electro-mechanical, or similar engineering technology associate degree programs may complete the bachelor's degree in two years of full-time college work or longer if part-time. The bachelor's degree program, which is available on Miami's regional campuses in Hamilton and Middletown, has an electro-mechanical emphasis.

The curriculum focuses on electro-mechanical instrumentation and process control. This field incorporates elements of both electrical and mechanical engineering technology. The electrical component of the curriculum includes course work in areas such as computerized instrumentation, data acquisition, and electrical control systems. The mechanical component consists of traditional engineering sciences including fluid mechanics, and dynamics. Integration of the electrical and mechanical components takes place through courses emphasizing development and control of automated industrial systems through the use of programmable controllers, data acquisition software and electro-mechanical systems design.

The curriculum further assures breadth of knowledge through the liberal education requirement. This complementary component of liberal education insures an individual's competency in assuming a leadership role in his/her community and professional world.

Graduates are engineering technologists prepared to fill industrial positions in areas directly related to scientific programming, product design, process control, testing, manufacturing, sales and service. Typical engineering technologist's duties may include working in teams involved with product analysis/design, instrumentation and control, CAD/CAM product design, laboratory testing services, product sales and service, product application, and the design of systems that require a hardware/software interface.

Upon successful completion of the program the student will be awarded the Bachelor of Science in Applied Science degree with a major in Engineering Technology.

For more information contact the Engineering Technology department at:

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www.ent.muohio.edu

Miami University-Department of Engineering Technology
Electromechanical Bachelor Completion - Electrical A.S. Degree
Beginning Fall 2009

Third Year

1st Semester

ENG 313 Technical Writing	3
MTH 251 Calculus II	4
CHM 141,144 Chemistry/Lab	5
ENT 151 Engineering Materials	3
ENT 311 Process Control Interface Design	<u>3</u>
	18

2nd Semester

STA 301 Statistics	3
MPLT Thematic Sequence	3
ENT 316 Project Management	3
ENT 401 Computerized Instrumentation	3
MPLT Elective	3
ENT 271 Mechanics I: Statics	<u>3</u>
	18

Fourth Year

1st Semester

ENT 301 Dynamics	3
MPLT Thematic Sequence	3
ENT 272 Mechanics II: Strength of Materials	3
ENT 310 Fluid Mechanics	3
ENT 402 Industrial Automation (spring 2010)	3
ENT 497 Senior Design I	<u>2</u>
	17

2nd Semester

MPLT Electives	6
ENT 418 Electro-Mech Control Systems	3
ENT 498 Senior Design II	2
ENT 407 Modern Manufacturing Systems	3
MPLT Thematic Sequence	<u>0-3</u>
	14-17

Electromechanical Bachelor Completion - Mechanical A.S. Degree
Beginning Fall 2006

Third Year

1st Semester

ENG 313 Technical Writing	3
MTH 251 Calculus II	4
CHM 141,144 Chemistry/Lab	5
ENT 196 Electronics Electronics	3
ENT 311 Process Control Interface Design	<u>3</u>
	18

2nd Semester

STA 301 Statistics	3
MPLT Thematic Sequence	3
ENT 316 Project Management	3
ENT 401 Computerized Instrumentation	3
MPLT Elective	3
ENT 293 Digital Switching	<u>3</u>
	18

Fourth Year

1st Semester

ENT 301 Dynamics	3
MPLT Thematic Sequence	3
ENT 310 Fluid Mechanics	3
ENT 402 Industrial Automation (spring 2010)	3
ENT 497 Senior Design I	2
	14

2nd Semester

MPLT Electives	6
MPLT Thematic Sequence	0-3
ENT 498 Senior Design II	2
ENT 407 Modern Mfg. Systems	3
ENT 418 Electro-Mech Control Systems	<u>3</u>
	14-17

EMET Third and Fourth Year Prerequisites

- ENT 301 Dynamics (3) Prerequisite: ENT 271 and MTH 151.
- ENT 310 Fluid Mechanics (3) Prerequisite: ENT 271 and MTH 151.
- ENT 311 Process Control Interface Design (3) Prerequisite: CSA 153, ENT 192
- ENT 316 Project Management (3) Prerequisite: ECO 201 or 202 or permission of instructor. Corequisite: STA 301, 368, or equivalent.
- ENT 401 Computerized Instrumentation (3) Prerequisite: ENT 311 and MTH 151.
- ENT 407 Modern Manufacturing Systems (3) Prerequisite: ENT 151, ENT 272, ENT 296
- ENT 418 Electro-Mechanical Control Systems (3) Prerequisite: MTH 251, ENT 301, and ENT 401.
- MPC 497 Senior Design Project (2, 2) Prerequisite: ENT 316 and senior standing in engineering technology or permission of instructor.

**Bachelor of Science in Applied Science
Major in Engineering Technology
Electro-Mechanical Concentration**

Curriculum Information for Graduates of an Associate Degree Program

Admission Requirement for Transfer Students:

Students entering this program must meet all Miami requirements for admission as published in the *Miami Bulletin* and have completed an associate degree with a major in Electrical, Mechanical, Electro-Mechanical, or a similar Engineering Technology program.

Prerequisites:

This completion program assumes students have completed courses equivalent to the following in their associate degree program:

- | | |
|----------------------------------|---|
| o MTH 151 Calculus I | o PHY 171-172 College Physics |
| o ENG 111 English Composition | o PHY 183-184 Physics Labs |
| o ENG 215 Technical Writing | o COM 135 Public Speaking |
| o ECO 201 Economics | or COM 136 Interpersonal Communication |
| o Miami Plan Foundation elective | o CSA 153 C++ Programming |
| | or CSA 163 Intro-Computer Concepts & Programming |

Additionally, students should have completed 32 semester credit hours of approved Engineering Technology courses including:

- | | |
|-------------------------------------|---|
| ENT 135 Computer Aided Drafting (3) | ENT 271 Mechanics I: Statics (3) |
| ENT 151 Engineering Materials (3) | ENT 272 Mechanics II: Strength of Materials (3) |
| ENT 192 Circuit Analysis I (3) | ENT 293 Digital Switching (3) |
| ENT 196 Electronics (3) | |

Students who do not meet these prerequisites will still be admitted to the program but will be required to complete the prerequisites as needed.

Curriculum Summary for the Bachelor's Degree Completion Program (65 hours minimum):

The following is a summary of the courses required to complete the baccalaureate degree following completion of an associate degree in which all prerequisites have been met. These courses include completion of the Miami Plan. All students must work closely with an advisor in selecting courses.

General Education (18 hours minimum)

- | | |
|---|-----|
| ENG 112 Composition and Literature | 3 |
| Miami Plan Fine Arts (MPF IIA) or
Miami Plan Humanities (MPF IIB) | 3 |
| Miami Plan Social Science (MPF IIIA) | 3 |
| Miami Plan World Cultures (MPF IIIB) | 3 |
| Thematic Sequence | 3-9 |

Math/Science (16 hours minimum)

- | | |
|--|-----|
| MTH 251 Calculus II | 4 |
| CHM 141,144 College Chemistry w/Lab | 5 |
| STA 301 Applied Statistics | |
| or STA 368 Introduction to Statistics | 3-4 |
| Miami Plan Biological Science (MPF IVA) | 3 |

***Bachelor of Science in Applied Science
Major in Engineering Technology
Electro-Mechanical Concentration***

Engineering Technology (31 hours minimum)

Engineering Technology courses for the baccalaureate completion portion requires a minimum of 31 credit hours. This Electro-Mechanical concentration of courses provides depth in mechanical, electrical and software integration necessary for automation.

<i>ENT 296 Programmable Logic Controllers</i>	<i>3</i>
<i>ENT 301 Dynamics</i>	<i>3</i>
<i>ENT 310 Fluid Mechanics</i>	<i>3</i>
<i>ENT 311 Process Control Interface Design</i>	<i>3</i>
<i>ENT 316 Project Management</i>	<i>3</i>
<i>ENT 401 Computerized Instrumentation and Feedback Control</i>	<i>3</i>
<i>ENT 402 Industrial Automation Lab (spring 2010)</i>	<i>3</i>
<i>ENT 418 Electro-Mechanical Control Systems</i>	<i>3</i>
<i>ENT 407 Modern Manufacturing Systems</i>	<i>3</i>
<i>ENT 497 Senior Design Project</i>	<i>2</i>
<i>ENT 498 Senior Design Project</i>	<u><i>2</i></u>
<i>Total</i>	<i>31</i>

***Bachelor of Science in Applied Science
Major in Engineering Technology
Electro-Mechanical Concentration***

Completing Engineering Technology Prerequisites

The following articulation programs are designed for those students who have a technical associate degree in a field other than Electrical, Mechanical, Electro-Mechanical, or similarly titled program.

If you complete the prerequisite courses (previously listed) and one of the sequences of courses (options) listed below, then you are eligible to continue toward the BS in Engineering Technology.

Mechanical Option (18 Cr. Hrs.):

- ENT 135 Computer Aided Drafting (3)
- ENT 192 Circuit Analysis I (3)
- ENT 293 Digital Switching (3)
- ENT 271 Mechanics I: Statics (3)
- ENT 272 Mechanics II: Strength of Materials (3)
- ENT 278 Mechanics III: Analysis of Machine Components (3)

Electrical Option (18 Cr. Hrs.):

- ENT 135 Computer Aided Drafting (3)
- ENT 192 Circuit Analysis I (3)
- ENT 193 Circuit Analysis II (3)
- ENT 196 Electronics (3)
- ENT 293 Digital Switching (3)
- ENT 294 Local Area Networks (3)

Miami University
Department of Engineering Technology
Bachelor of Science in Applied Science – Mechanical Concentration
Major in Engineering Technology
(Mechanical Concentration)

**Accredited by the Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050,
Baltimore, MD 21202-4012 – telephone (410) 347-7700**

The Engineering Technology baccalaureate-degree (Mechanical Engineering Technology concentration) is a completion program for graduates of associate degree programs in mechanical engineering technology. The objective of this program is to allow students who possess an associate degree in this area to complete the bachelor degree in approximately the equivalent of two years of full-time work (64-70 hours).

Mechanical Engineering Technology focuses on applications engineering and the analysis of the mechanical components of mechanisms, machines, products, and systems. The program requires a thorough understanding of applied mathematics and the engineering sciences. Students will develop the essential skills needed to apply experimental and empirical techniques to the study of systems and the solution of problems. This knowledge is used to research concepts, apply modeling methods, simulate and test operating conditions and their impact on the designed systems, and synthesize different elements to obtain an optimum design of a specific product.

Industry is in need of qualified mechanical engineering technologists who are able to apply such tools as computer-aided design (CAD), finite element modeling and analysis, and the concepts of advanced mechanical design to the creation of sophisticated machines and systems.

The mechanical engineering technology concentration provides depth of study in mechanical and manufacturing engineering technology built on a solid foundation of mathematics, physics, and computer science. The program also provides breadth through required studies in economics, humanities, social science, United States and world cultures, and liberal arts.

Graduates will find employment opportunities in a diverse spectrum of professional fields. Many mechanical engineering technologists work on team projects within manufacturing-related areas such as testing, analysis, design, and the development of products. Graduates may also continue their education at graduate engineering technology/engineering levels.

For more information contact the Engineering Technology department at:

Gary Drigel
Miami University Hamilton
1601 University Boulevard
Hamilton, OH 45011
(513) 785-1813

Ron Earley
Miami University Middletown
4200 E. University Boulevard
Middletown, OH 45042
(513) 727-3250

www.ent.muohio.edu

***Bachelor of Science in Applied Science
Major in Engineering Technology
Mechanical Concentration***

***BS with Mechanical Engineering Technology Associate Degree
ASSOCIATE DEGREE***

FIRST YEAR

<u>1st Semester</u>		<u>2nd Semester</u>	
PHY 171 College Physics	3	PHY 172 College Physics	3
PHY 183 Physics Lab (MPF IVB)	1	PHY 184 Physics Lab (MPF IVB)	1
MTH 125 ¹ Pre-calculus	5	ENG 111 College Composition (MPF I)	3
ENT 135 Computer-Aided Drafting	3	CSA 163 Intro-Computer	
ENT137 Introduction to Engineering Technology	1	Concepts & Programming (MPF V)	3
ENT 151 Engineering Materials	<u>3</u>	ENT 152 Computer-Aided Mfg. I	3
	16	ENT 271 Mechanics I: Statics	<u>3</u>
			16

¹Waived for students who test higher than MTH 125.

SECOND YEAR

<u>1st Semester</u>		<u>2nd Semester</u>	
ENG 215 Technical Writing	3	COM 135 or 136 (MPF IIB)	3
MTH 151 Calculus (MPF V) (MPT)	5	ECO 201 Economics (MPF IIC)	3
ENT 235 Computer-Aided Design	3	MPF IIIA (US Cultures)	3
ENT 272 Mechanics II: Strength of Materials	3	ENT 278 Mechanics III: Analysis of Machine	
ENT 252 Computer-Aided Mfg II	<u>3</u>	Components	3
	17	ENT 192 Circuit Analysis	<u>3</u>
			15

BACHELOR'S COMPLETION

THIRD YEAR

<u>1st Semester</u>		<u>2nd Semester</u>	
MTH 251 Calculus II	4	STA 301 Applied Statistics (MPT)	3
ENT 301 Dynamics	3	ENG 112 Comp & Literature (MPF I)	3
ENT 310 Fluid Mechanics	3	ENT 316 Project Management	3
ENT 312 Thermodynamics & Heat Power	3	ENT 314 Mechanisms for Mechanical Design	3
ENT 333 Computational Methods for		ENT 355 Intro to Finite Element Analysis	3
Engineering Technology	<u>4</u>	ENT 404 Experimentation Techniques for	<u>3</u>
	17	Engineering Technology	18

FOURTH YEAR

<u>1st Semester</u>		<u>2nd Semester</u>	
MPF IIIB (World Cultures)	3	MPF II elective	3
CHM 141 College Chemistry	3	MPF II elective (Fine Arts)	3
CHM 144 College Chemistry Lab	2	MTH 231 Discrete Math (MPT)	3
ENT 415 Heat Transfer with Applications	3	MPF IVA Biological Science elective	3
ENT 416 Topics in Mechanical Vibrations	3	ENT 498 Senior Design Project	<u>2</u>
ENT 497 Senior Design Project	<u>2</u>		14
	16		

ASSOCIATE

DEGREE

PROGRAMS

Miami University

Electrical and Computer Engineering Technology

Associate of Applied Science Degree Program

**Accredited by the Technology Accreditation Commission of ABET, 111 Market Place.
Suite 1050, Baltimore, MD 21202-4012 – telephone (410) 347-7700**

This program includes course work in both electrical and electronic fields. It provides depth and breadth in electrical fundamentals as well as the advanced technology found in modern electrical/electronic and computing systems. Hands-on labs are used to reinforce concepts taught in the classroom. Students develop the ability to analyze, synthesize and solve technical problems. Topics of study include AC and DC circuit analysis, analog and digital electronics, relay logic, programmable logic controllers, microprocessor, personal computer architecture, local area networks (LAN), C++ and assembly language programming.

Graduates work as electronic technicians, electrical maintenance technicians, computer maintenance and network technicians, engineering assistants, computer and PLC programmers, and many other related paraprofessional positions. Graduates may also continue their education toward a Bachelor of Applied Science Degree. Refer to our Engineering Technology Bachelor Completion degree for details.

For more information contact:

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Miami University Hamilton
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Middletown, Ohio 45042
513-727-3244

www.ent.muohio.edu

Miami University

Department of Engineering Technology

Electrical and Computer Engineering Technology

FIRST YEAR

<u>1ST SEMESTER</u>	<u>CREDIT HOURS</u>	<u>2ND SEMESTER</u>	<u>CREDIT HOURS</u>
PHY 171 College Physics	3	PHY 172 College Physics	3
PHY 183 Physics Laboratory	1	PHY 184 Physics Laboratory	1
MTH 125 Pre-calculus	5	ENG 111 College Composition	3
ENT 135 Computer-Aided Drafting	3	CSA 153 Intro C++ Programming	3
ENT 137 Intro to Engineering Technology	1	ENT 193 Circuit Analysis II	3
ENT 192 Circuit Analysis I	<u>3</u>	ENT 196 Electronics	<u>3</u>
	16		16

SECOND YEAR

<u>1ST SEMESTER</u>	<u>CREDIT HOURS</u>	<u>2ND SEMESTER</u>	<u>CREDIT HOURS</u>
MTH 151 Calculus I	5	ENG 215 Technical Writing	3
ENT 295 Microprocessor Tech. I.	3	COM 135 Public Speaking	
ENT 293 Digital Switching	3	OR COM 136 Interpersonal Com.	3
ENT 294 Local Area Networks	3	ECO 201 Principles of Economics	3
ENT 291 Industrial Electronics	<u>3</u>	MPF Group III Elective (US or WC)	3
	17	ENT 296 Programmable Controllers	3
		ENT 297 Microprocessor Tech. II	<u>3</u>
			18

Revised Jan 2007

Miami University

Department of Engineering Technology

Electrical and Computer Engineering Technology

Co-Op Option

First Year

<u>First Semester</u>		<u>Second Semester</u>		<u>Summer</u>	
PHY 171	3	CO-OP (ENT 220)		ENG 111	3
PHY 183	1	+		CSA 153	3
MTH 125	5	ENT 193	3	PHY 172	3
ENT 137	1	ENT 196	3	PHY 184	1
ENT 135	3			ECO 201	3
ENT 192	3				

Second Year

<u>First Semester</u>		<u>Second Semester</u>		<u>Summer</u>	
CO-OP (ENT 220)		MTH 151	5	CO-OP (ENT 220)	
+		ENG 215	3	+	
ENT 294	3	ENT 296	3	MPF Group III Elective	
ENT 293	3	ENT 297	3	(US or World Cultures)	3
ENT 295	3			COM 13X	3
ENT 291	3				

NOTE: Courses listed with **Co-Op** will be taken during evening hours. During first semester of the second year this load may be too heavy. You may elect to postpone ONE of the three courses until the second semester of the next year. This should not affect your ability to obtain full-time employment at the end of the summer of the second year.

Revised: July 2004

Miami University

Mechanical Engineering Technology

Associate of Applied Science Degree Program

**Accredited by the Technology Accreditation Commission of ABET, 111 Market Place.
Suite 1050, Baltimore, MD 21202-4012 – telephone (410) 347-7700**

The Mechanical Engineering Technology program emphasizes courses in computer-aided drafting (CAD), computer-aided engineering analysis and design, computer-aided manufacturing (CAM), computer numerical control programming (CNC), and engineering mechanics. These courses include laboratory experiences working with modern materials testing equipment; microcomputer-based engineering analysis software; CAD/CAM hardware and software; microprocessor-controlled robots; and a variety of engineering support software. Mechanical Engineering Technology students develop the ability to analyze, synthesize, and solve technical problems.

The Mechanical Engineering Technology associate degree program provides a solid foundation of mathematics, physics, and computer applications. The program also provides breadth through required studies in economics, communications, and liberal arts.

Graduates work as Engineering Technicians within manufacturing related areas such as testing, analysis, design, and development of products. Graduates may also continue their education toward a Bachelor of Science in Applied Science degree. Refer to our Engineering Technology Bachelor Completion degree for details.

For more information contact:

Gary Drigel
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1601 University Boulevard
Hamilton, OH 45011
(513) 785-1813

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www.ent.muohio.edu

Miami University

Department of Engineering Technology

Mechanical Engineering Technology

FIRST YEAR

<u>1ST SEMESTER</u>	<u>CREDIT HOURS</u>	<u>2ND SEMESTER</u>	<u>CREDIT HOURS</u>
PHY 171 College Physics	3	PHY 172 College Physics	3
PHY 183 Physics Laboratory	1	PHY 184 Physics Laboratory	1
MTH 125 Pre-calculus	5	ENG 111 College Composition	3
ENT 135 Computer-Aided Drafting	3	CSA 163 Intro-Computer Concepts & Prog	3
ENT 137 Intro to Engineering Technology	1	ENT 152 Computer-Aided Mfg. I	3
ENT 151 Engineering Materials	<u>3</u>	ENT 271 Mechanics I: Statics	<u>3</u>
	16		16

SECOND YEAR

<u>1ST SEMESTER</u>	<u>CREDIT HOURS</u>	<u>2ND SEMESTER</u>	<u>CREDIT HOURS</u>
ENG 215 Technical Writing	3	COM 135 Public Speaking OR	
MTH 151 Calculus	5	COM 136 Interpersonal Communication	3
ENT 235 Computer-Aided Design	3	MPF Group III Elect. (US or World Cultures)	3
ENT 272 Mechanics II: Strength of Materials	3	ENT 278 Mechanics III: Analysis of Machine Components	3
ENT 252 Computer-Aided Mfg. II	<u>3</u>	ECO 201 Economics	3
	17	ENT 192 Circuit Analysis	<u>3</u>
			15

Miami University

Department of Engineering Technology

Mechanical Engineering Technology

Co-Op Option

FIRST YEAR

<u>First Semester</u>		<u>Second Semester</u>		<u>Summer</u>	
PHY 171	3			ENG 111	3
PHY 183	1		CO-OP (ENT 220)	CSA 163	3
MTH 125	5		+	PHY 172	3
ENT 135	3	ENT 152	3	PHY 184	1
ENT 137	1	ENT 271	3	ECO 201	3
ENT 151	3				

SECOND YEAR

<u>First Semester</u>		<u>Second Semester</u>		<u>Summer</u>	
		MTH 151	5		
	CO-OP (ENT 220)	ENG 215	3	CO-OP (ENT 220)	
	+	ENT 278	3	+	
ENT 272	3	ENT 192	3	MPF Group III Elective	
ENT 252	3			(US or World Cultures)	3
ENT 235	3			COM 13X	3

NOTE: Courses listed with **CO-OP** will be taken during evening hours. During first semester of the second year this load may be too heavy. You may elect to postpone ONE of the three courses until summer of the next year. This should not affect your ability to obtain full-time employment at the end of the summer of the second year.

Revised: July 2004

CERTIFICATE PROGRAMS

Miami University

Department of Engineering Technology

Certificate in

Computer Aided Drafting/Computer Aided Manufacturing (CAD/CAM)

This certificate program is designed to prepare you for an entry level position in the field of computer aided drafting/ computer aided manufacturing. All of the courses required for this certificate program may be applied toward the Mechanical Engineering Technology associate degree program.

Curriculum: (30 Credit Hours Required)

General Support Courses:

ENG 111 College Composition	3
MTH 125 Pre-Calculus	5
PHY 171,183 College Physics and Lab	4
Total	12

Technical Courses:

CSA 153 C++ Programming or CSA 163 Intro to Computer Concepts & Programming	3
ENT 135 Computer Aided Drafting	3
ENT 152 Computer Aided Mfg. I	3
ENT 235 Computer Aided Design	3
ENT 252 Computer Aided Mfg. II	3
ENT 271 Mechanics I: Statics	3
Total	18

For more information please contact:
Ayo Abatan, Chair

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1601 University Blvd.
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Miami University

Department of Engineering Technology

Certificate in

Computer Hardware Technology

This certificate program is designed to prepare you for an entry level position in the field of computer repair and maintenance. All of the courses required for this certificate program may be applied toward the Electrical Engineering Technology associate degree program.

Curriculum: (32 Credit Hours Required)

General Support Courses:

ENG 111 College Composition	3
ENG 215 Technical Writing	3
MTH 125 Pre-Calculus	5
MPF elective	<u>3</u>
Total	14

Technical Courses:

CSA 153 C++ Programming or CSA 163 Intro to Computer Concepts & Programming	3
ENT 192 Circuit Analysis I	3
ENT 196 Electronics	3
ENT 293 Digital Switching	3
ENT 295 Microprocessor Tech. I	3
ENT 297 Microprocessor Tech. II	<u>3</u>
Total	18

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COURSES

DESCRIPTIONS

FLOW DIAGRAM

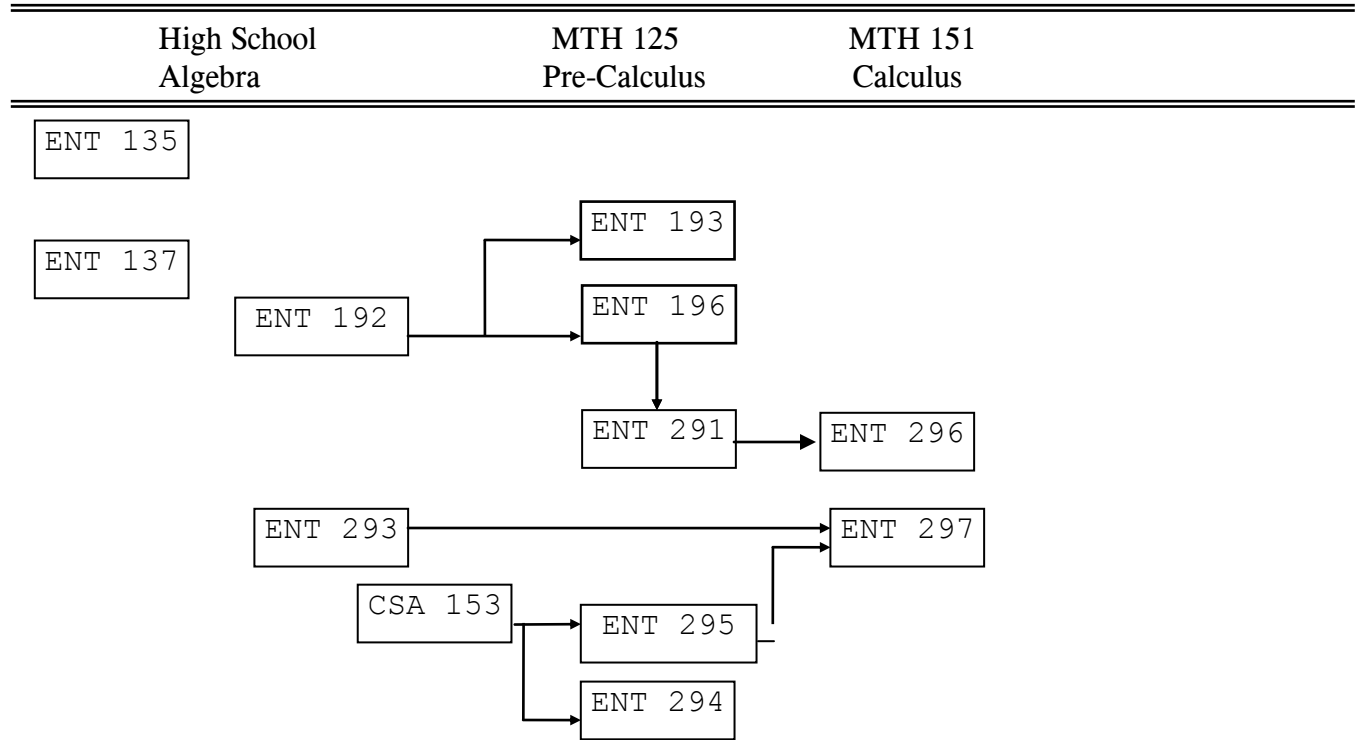
OTHER INFORMATION

Course Flow Diagram

Electrical and Computer Engineering Technology

(See Miami Bulletin for more details)

Course Flow Diagram By Suggested Math Level



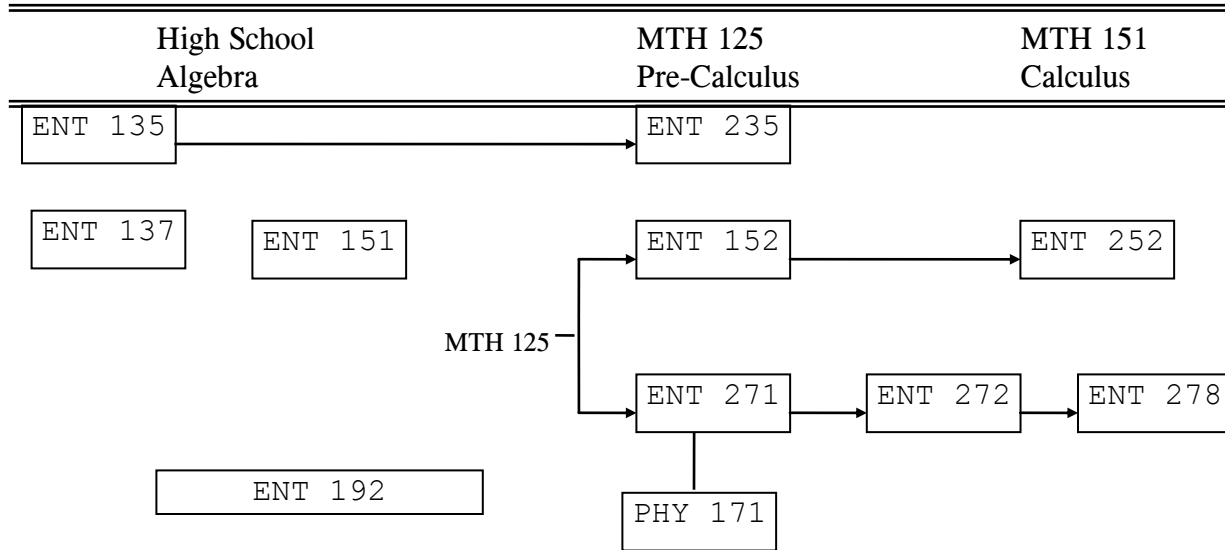
- o Many Engineering Technology courses require the writing of papers and oral presentations and, therefore, require ENG 111, ENG 215 and COM 13X.
- o See course descriptions in this booklet and in the *Miami Bulletin* for complete information about prerequisites.

Course Flow Diagram

Mechanical Engineering Technology

(See Miami Bulletin for more details)

Course Flow Diagram By Suggested Math Level



- o Many Engineering Technology courses require the writing of papers and oral presentations and, therefore, require ENG 111, ENG 215 and COM 13X.
- o See course descriptions in this booklet and in the Miami Bulletin for complete information about prerequisites.

Course Flow Diagram

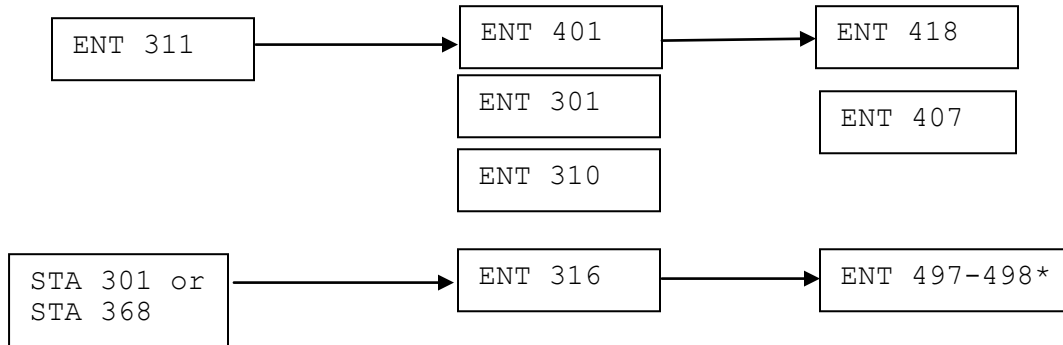
(See Miami Bulletin for more details)

Course Flow Diagram by Suggested Math Level (BS Completion Program)

MTH 151 Calculus I

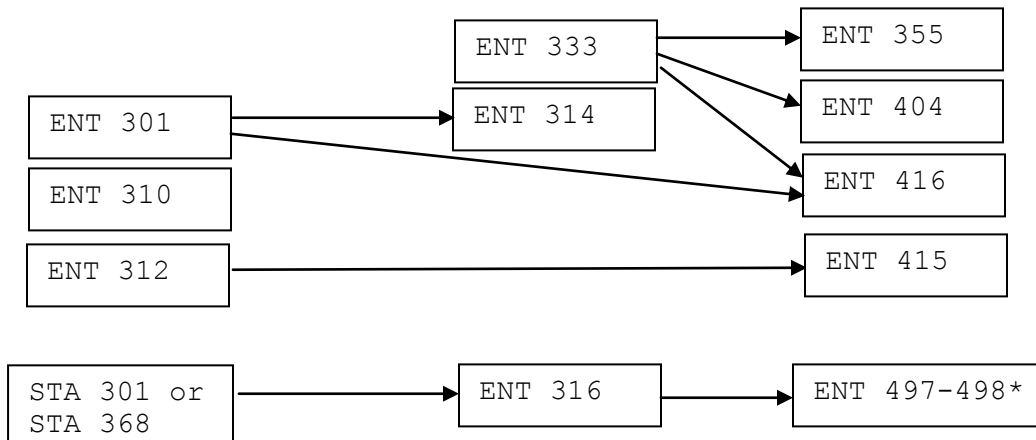
MTH 251 Calculus II

Electro-Mechanical Engineering Technology (Concentration)



* Take ENT 497-498 during your last year.

Mechanical Engineering Technology (Concentration)



* Take ENT 497-498 during your last year.

Math Sequence

MTH 001 or 002 or 007 (1-3 credit hours)
(MTH 001 Arithmetic, 2 credit hours)
(MTH 002 Pre-algebra, 2 credit hours)
(MTH 007 Numbers & Computation Workshop, 3 credit hours)



MTH 101.3 (3 credit hours)
(Introduction to Elementary Algebra)



MTH 102 (3 credit hours)
(Intermediate Algebra)



MTH 125 (5 credit hours)
(Pre-calculus)



MTH 151 (5 credit hours)
(Calculus I)

Using the results of your Math Placement test, prior math courses, and life experience, an advisor (ENT or Math Department) can assist you with proper math placement. For ENT associate degree programs you are required to complete 8 - 10 hours of math and attain the level of MTH 151.

Revised: July 1995

Course Substitutions

(for associate degree programs)

The following is a list of courses required by ENT majors which have departmentally approved substitutions. Any or all other substitutions require specific advisor (department) approval.

Required Course

PHY 171, 172
ENG 215
ECO 201
ENG 215

Approved Substitution

PHY 181, 182
ENG 112
ECO 202
ENG 313(prerequisites: ENG 111 & 112)

- o In addition to the above, the department will consider adjustment of technical course requirements (ENT courses) based on career goals or areas of special interest. Ask your advisor for assistance with these substitutions.

- o Transfer students may require substitutions not listed above. Transfer students should see a department advisor for assistance.

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Miami University

Department of Engineering Technology

Engineering Technology (ENT) Course Descriptions

[Note: One lecture hour is one contact hour. One lab hour is two contact hours.]

135 COMPUTER-AIDED DRAFTING (3)

A study of drafting as the graphic language of industry and application of computer-aided technology to two and three-dimensional engineering drawings. Microcomputers are used.

1 Lecture, 2 Labs

137 INTRODUCTION TO ENGINEERING TECHNOLOGY (1)

An introductory course for students entering Engineering Technology. This course covers broad elementary engineering concepts to include a definition of engineering technology, the distinction between the various areas of focus in engineering technology, introduction to engineering "terminology," and a survey of current issues (problems, research efforts, recent developments, etc.) in the engineering field.

Prerequisite: high school algebra

151 ENGINEERING MATERIALS (3)

A study of basic engineering materials; metals, plastics, ceramics and composites. Structure, properties, and applications emphasized. (Mechanical technology)

2 Lectures, 1 Lab

Prerequisite: 2 years of high school algebra

152 COMPUTER-AIDED MANUFACTURING (3)

An introduction to manufacturing processes and the use of the computer as a tool in those processes. Students will be introduced to computer numerical control programming, statistical process and control, and topics related to the "automated factory." (Mechanical technology)

2 Lectures, 1 Lab

Prerequisite: 2 years of high school algebra

Co-requisite: MTH 125

177, 277, 377, 477 INDEPENDENT STUDY (1 - 5)

Independent study courses are available to undergraduate students. You can register for one to five hours of independent study each semester (no more than 10 per year). Registration for each course will be in accordance with the level of instruction. Independent study projects must be approved by the instructor and the department chair.

191 INTRODUCTION TO ELECTRICAL ENGINEERING TECHNOLOGY (3)

An introductory course for students with limited background in mathematics and/or electricity. This course covers broad elementary electrical concepts and is intended to meet the needs articulated by representatives of local industry. Students will use calculations to solve mathematical problems relating to electrical circuits. (Electrical technology)

2 Lectures, 1 Lab

Prerequisite: High School Algebra

192 CIRCUIT ANALYSIS I (3)

A detailed study of d-c electric circuits and related bilateral devices. Conventional and computer circuit analysis will be used.

2 Lectures, 1 Lab

Prerequisite: High School Algebra

193 CIRCUIT ANALYSIS II (3)

A detailed study of the analysis of a-c and d-c electric networks, including resistive, reactive, and combinations thereof. Analysis techniques include conventional and computerized modeling.

2 Lectures, 1 Lab

Prerequisites: ENT 192, MTH 125

196 ELECTRONICS (3)

Detailed study of analog electronic circuits and devices. Emphasis placed on operating parameters of linear (analog) circuits; techniques of circuit analysis applied as an integral part of the course. The use of computerized data analysis encouraged. (Electrical technology)

2 Lectures, 1 Lab

Prerequisites: ENT 192

202 SPECIAL PROBLEMS (.5 - 3)

An intensive concentration of a problem or set of problems in an approved area of study in technology to be determined in consultation with the instructor. May be used as an elective for ENT Associate Degree Programs. Offered infrequently.

Prerequisite: Sophomore standing and departmental approval

220 PROFESSIONAL PRACTICE (0 - 2) (co-op/internship)

Students participating in the engineering technology co-op program register for this course during semesters when they are on work assignment. This enables students to remain in good standing with the University registrar. Crosslisted with CIT 220

Prerequisite: Permission of departmental internship coordinator

235 COMPUTER-AIDED DESIGN (3)

A computerized graphic design study of industrial related engineering problems with emphasis on three-dimensional data base. The laboratory portion of the course uses microcomputers. (Mechanical technology)

2 Lectures, 1 Lab

Prerequisites: ENT 135, MTH 125

252 COMPUTER-AIDED MANUFACTURING II (3)

This course covers topics related to the "automated factory" including: computer numerical control and computer-assisted part programming, distributive numerical control (DNC), computer-assisted process planning, flexible manufacturing systems and robotics. (Mechanical technology)

2 Lectures, 1 Lab

Prerequisites: ENT 152, CSA 153, 163 or equivalent recommended

271 MECHANICS I: STATICS (3)

This course is an introduction to the application of the equations of equilibrium to the solution of two and three-dimensional problems involving rigid body structures. The concept of friction and mechanical work is introduced. (Mechanical technology)

Prerequisite: MTH 125

Co-requisite: PHY 171 or equivalent recommended

272 MECHANICS II: STRENGTH OF MATERIALS (3)

Elastic relationships between external forces acting on deformable bodies and resulting stresses and deformations are studied. Industrial applications of these relationships to the solutions of engineering design problems are emphasized. (Mechanical technology)

2 Lectures, 1 Lab

Prerequisite: ENT 271

278 MECHANICS III: ANALYSIS OF MACHINE COMPONENTS (3)

An introduction to the use of statics and strength of materials to the analysis of individual machine components. The application of these principles of overall machine analysis will be presented. (Mechanical technology)

2 Lectures, 1 Lab

Prerequisite: ENT 272

291 INDUSTRIAL ELECTRONICS (3)

A study of the basic components and systems used in industrial electronics including operational amplifiers, linear integrated circuits, brushless and stepper dc motors, control devices, optoelectronics, pulse modulation, sequential process control and programmable logic controllers. (Electrical technology)

2 Lectures, 1 Lab

Prerequisite: ENT 196

292 ELECTRIC MACHINES AND CONTROL (3)

A study of the characteristics and applications of rotating electric machinery, static electric machines, and related control elements. (Electrical technology)

2 Lectures, 1 Lab

Prerequisite: ENT 192

293 DIGITAL SWITCHING (3)

Principles and applications of digital systems. Emphasis is placed on the study of combinational and sequential logic from a systems approach. Actual ICs are used as well as digital timing diagrams and waveforms. (Electrical technology)

2 Lectures, 1 Lab

Co-requisite: MTH 125

294 LOCAL AREA NETWORKS (3)

An introductory coverage of the technology and administration of Local Area Networks. Various transmission mediums are covered including Ethernet, fiber optics, and wireless communication. (Electrical technology)

2 Lectures, 1 Lab

295 MICROPROCESSOR TECHNOLOGY I (3)

An introductory study of the architecture, operation, and application of microprocessors for commercial and industrial use. Emphasis is placed on understanding internal architecture, segmentation, arithmetic instructions, and the role I/O ports, memory, and machine language play in putting the microprocessor to work. (Electrical technology)

2 Lectures, 1 Lab

Prerequisite: CSA 153

296 PROGRAMMABLE LOGIC CONTROLLERS (3)

Study of the principles and applications of Programmable Logic Controllers including ladder logic, program control, data manipulation, math instructions, sequencers, shift registers, networking, PLC-mechanism interfacing and human-machine interfacing.

2 Lectures, 1 Lab

Prerequisites: ENT 192

297 MICROPROCESSOR TECHNOLOGY II (3)

Advanced study of microprocessor application for commercial and industrial use. Emphasis on microcomputer architecture interface to personal computers and peripheral devices such as printers, modems, D to A and A to D converters, and programmable logic devices. Applications of specific devices such as single chip embedded controllers, USB interface devices, wireless interface devices, Parallel Peripheral Interfaces, and Industrial Machine Controllers.

2 Lectures, 1 Lab

Prerequisites: ENT 293, 295

298 DATA COMMUNICATIONS (3)

This course provides an introduction to data communications, computer networks, and media. It will include transmission basics, digital representations, data link concepts, and other networking issues. A networking Data Communications project is assigned as a significant part of the course requirement.

Prerequisite: CSA 153 or 174

301 DYNAMICS (3)

The basic concepts of force, mass, and acceleration; work and energy; and impulse and momentum are introduced and applied to problems involving particles and rigid bodies. Topics include displacement, velocity, and acceleration of a particle; relations between forces acting on a particle or rigid body; and the changes in motion produced.

2 Lectures, 1 Lab

Prerequisites: MTH 151, ENT 271

310 FLUID MECHANICS (3)

The application of fluid statics and fluid dynamics to the solution of fundamental engineering fluid problems. The one dimensional energy and momentum equations are introduced and applied to the solution of fluid flow problems.

2 Lectures, 1 Lab

Prerequisites: MTH 151, ENT 271

311 PROCESS CONTROL INTERFACE DESIGN (3)

An introduction to data acquisition and control with a graphical user interface (GUI). Topics include parallel, serial and network access. Data transfer technology such as Object Linking and Embedding and Dynamic Data Exchange are also covered.

2 Lectures, 1 Lab

Prerequisites: CSA 153, ENT 192 or equivalent and completion of an engineering technology associate degree or permission of instructor.

312 THERMODYNAMICS AND HEAT POWER (3)

Introduction to fundamental concepts of energy transformation and transport. The First and Second Laws of thermodynamics are applied to process and cycle analysis. Heat conduction, convection, and radiation modes are introduced and applied to simple heat balance problems.

Prerequisites: MTH 151, PHY 172 and completion of an engineering technology associate degree or permission of instructor.

314 MECHANISMS FOR MACHINE DESIGN (3)

Rigid body kinematics is applied to the analysis and design of mechanisms used in machines. The course includes motion and force transference from power source, motion characteristics of real-world machinery, and analysis and design concepts to facilitate optimization of the machine arrangement.

Prerequisite: ENT 301

316 PROJECT MANAGEMENT (3)

A course of upper-level students in Engineering Technology. This course covers background, techniques, and case studies in project management particularly focused on engineering technology applications. The student will develop a fundamental understanding of the concepts for managing both small and large projects. Discussion, evaluation, and presentation skills will be enhanced. Some of the specific topics to be covered include: Gantt charts, PERT charts, projects life-cycle, budgeting, cost analysis, breakeven analysis, conflict resolution, organization tools, project planning, statistical process control, and other selected quality improvement tools. Microsoft Project and Microsoft Excel will be used as software tools throughout the course.

Prerequisite: ECO 201 or 202 or permission of instructor

Co-requisite: STA 301, 368, or equivalent

333 COMPUTATIONAL METHODS FOR ENGINEERING TECH (4)

An in-depth study of engineering analysis techniques with emphasis on mathematical analysis of mechanical and electrical subsystems. Detailed study of a variety of situations using techniques based on state-variable analysis and state-transition matrix; convolution and circuit response in the time domain; system function and response in the frequency domain; and time shift and periodic functions.

3 Lectures, 1 Lab

Co-requisite: MTH 251

355 INTRODUCTION TO FINITE ELEMENT ANALYSIS (3)

An application of the basic concepts of finite element modeling and analysis to various types of engineering technology problems including structural and machine component analysis, conduction and convection heat-transfer analysis, and fluid mechanics analysis. Selected analytical aspects of finite element analysis are introduced throughout the course without becoming too theoretical. ANSYS[®] computer software is an integral part of the course and is used within the laboratory program portion.

2 Lectures, 1 Lab

Prerequisite: ENT 333

401 COMPUTERIZED INSTRUMENTATION AND FEEDBACK CONTROL (3)

Overview of the requirements for the design of servo-mechanisms including stability, transfer functions, loop dynamics, and digital signal processing. Covers digital and analog signal conditioning, transducers, and controllers.

2 Lectures, 1 Lab

Prerequisites: ENT 311, MTH 151

404 EXPERIMENTATION TECHNIQUES (3)

Coverage of experimentation techniques pertaining to mechanical engineering technology measurement methods and performance testing. Emphasis is on basic principles involved in measurement techniques. Topics range from mechanical systems to air pollution measurement techniques.

2 Lectures, 1 Lab

Prerequisites: ENT 333

407 TOPICS IN ELECTRO-MECHANICAL ENGINEERING TECHNOLOGY (3)

Coverage of topics related to the manufacturing environment including metal deflection and tolerance, robotics, programmable controller applications, and manufacturing cells.

2 Lectures, 1 Lab

Prerequisites: ENT 151, ENT 272, ENT 296

412 INDUSTRIAL APPS. OF NEURAL NETWORKS AND FUZZY LOGIC (3)

An introduction to fundamentals and industrial applications of neural networks and fuzzy logic. Emphasizes studies in process control and manufacturing systems are included.

2 Lectures, 1 Lab

Prerequisites: CSA 153, STA 368, and MTH 251

415 HEAT TRANSFER WITH APPLICATIONS (3)

Concepts of the three modes of heat transfer, conduction, convection, and radiation, discussed separately and in combination. Each mode of heat transfer is presented by relating fundamental principles and computational methods to practical, real-world thermal systems and applications. Practical application projects from such industries as aerospace, automotive, and chemical processing are assigned to reinforce these principles.

Prerequisite: ENT 312

416 TOPICS IN ENGINEERING VIBRATIONS (3)

This course provides a study of mechanical vibrations topics with emphasis on mathematical analysis methods that may be applied to the solution of industrial engineering technology problems. Computer analysis software and experimental methods are introduced within the laboratory portion of the course.

2 Lectures, 1 Lab

Prerequisite: ENT 301, ENT 333

418 ELECTRO-MECHANICAL CONTROL SYSTEMS (3)

This course covers advanced control topics including state variable models, higher order system response, transient response, and stability analysis.

Prerequisites: ENT 301, ENT 401, MTH 251

497-498 SENIOR DESIGN PROJECT (2, 2)

Student teams conduct major open-ended research and design projects. Elements of the design process including establishment of objectives, synthesis, analysis, and evaluation are integral parts. Real-world constraints such as economical and societal factors, marketability, ergonomics, safety, aesthetics, and ethics are also integral parts. 497: feasibility studies performed. 498: implementation, testing, and production of design. Includes guest lecturers, team presentations, team building sessions, team meetings, and guided discussions relating to design. Continuous interaction with faculty and outside professionals.

Prerequisite: ENT 316 and senior standing in engineering technology or permission of instructor.

GRADUATES AND EMPLOYERS

Companies Employing Co-op Students & Graduates

The co-op placement offices at both the Hamilton and Middletown campuses will assist you in locating a co-op job. Employment opportunities are posted to the following web pages.

Hamilton & Middletown: www.ham.muohio.edu/jobs
 Oxford: www.muohio.edu/careers

The following is a partial list of companies that employ or
 have employed our co-op students and/or graduates.

Advanced Drainage Systems	General Electric	Procter & Gamble
Aeronca Inc.	G.E. Schmidt	R.D. Zande & Associates, Inc.
AK Steel	Hamilton Caster & Mfg. Co.	Scitex
Barco Simulation, LLC.	Hamilton Custom Molding	Sonitrol Security Systems
Berenfield Containers, Inc.	Honda of America Manufacturing Company	Southwest Regional Water District
Butler Rural Electric	Innovative Energy Solutions	Steelcraft/Ingersol-Rand
City of Cincinnati	Innovative Fiber-Optic Solutions, Inc.	Super Systems, Inc.
Dayton Power & Light Co.	Kodak Versamark, Inc.	Timken Corporation
Deceuninck North America Wood Composite	Kornylak Corporation	The Wornick Company
Dixie Manufacturing	Magna Machine	Valeo Climate Control
Duke Energy	Parker Hannifin	Vasco Manufacturing
Fiber Systems, Inc.	Pella Corporation	Visteon
Force Control Industries	Premier Systems Integrators	Weston Solutions, Inc.

What they're saying...

Graduates

"I really feel that the programs (Engineering Technology Associate and Bachelor) offered at the regional campuses of Miami are not only high in quality but also very convenient." Mechanical Engineering Technology Graduate.

"Thanks to the Engineering Technology department and the Co-op Placement Office at Miami I have received the education and the experience I needed to begin a challenging and well paying career in Drafting/Design." Mechanical Engineering Technology Graduate.

"I was quite impressed with the program while in attendance. I felt it was well structured and supported by the department staff." Electrical Engineering Technology Graduate.

Employers

"Armco Research & Technology has employed six graduates from Miami's Department of Engineering Technology over the past twenty or so years. We have been extremely pleased with the performance of your graduates." Armco Research & Technology.

"We have hired two of your former students as Proposal Engineers in our Proposal Engineering Department. We have found both to be excellent employees. We have had very good experiences with the students we have hired, and intend to hire more in the future." Force Control Industries, Incorporated.

"I would like to commend you on your fine program. Keep up the good work and continue to turn out graduates like Jess!" American Fan Company.

**Electrical and Computer Engineering Technology (AD)
Representatives of
SCHOOL OF APPLIED SCIENCE ADVISORY COUNCIL
ENGINEERING TECHNOLOGY ADVISORY COUNCIL
(revised October 1, 2008)**

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FACULTY

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EDUCATION

PhD	Civil Engineering, Virginia Polytechnic Institute and State University	1976
MS	Civil Engineering, University of Illinois, Urbana, Illinois	1973
BS	Civil Engineering, Ahmadu Bello University, Zaria, Nigeria	1971

PROFESSIONAL EXPERIENCE

2006 – Present	Professor and Chair, Engineering Technology, Miami University
2001 - 2006	Director, Systems Science PhD Program, Clark Atlanta University (CAU)
1994 - 2004	Professor and Chair, Department of Engineering, CAU
1993 - 2006	Director, Laboratory for Intelligent Material Systems, CAU
1993 - 1999	Associate Director, High Performance Polymers and Composites Center, CAU
1992 - 1993	Visiting Professor, Virginia Military Institute
1991 - 1992	Visiting Professor, Virginia Polytechnic Institute & State University
1984 - 1991	Professor & Chair of Civil Engineering, Ahmadu Bello University
1981 - 1982	Visiting Professor, Virginia Polytechnic Institute & State University
1976 - 1984	Assistant/Associate Professor, Ahmadu Bello University, Nigeria
1974 - 1976	Research Fellow, Virginia Polytechnic Institute & State University
1973 - 1974	Structural Engineer, Westenhoff & Novick Consulting Engineers, Chicago
1971 - 1973	Research Fellow, University of Illinois at Urbana - Champaign

RESEARCH INTERESTS

Smart Machines and Structures	Computational and Nonlinear Structural Mechanics
Impact Dynamics of Composites	Static and Dynamic Stability of Shells
Composites in Infrastructure	Alternative Construction Materials
Durability of Advanced Materials in Structures	Computer –Assisted Instruction/Learning
Integrity Monitoring and Non-Destructive Evaluation of Structures	

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Member, American Society of Civil Engineers (ASCE)
Charter Member, Structural Engineering Institute (SEI)
Member, International Association for Structural Control (IASC)
Member, American Society for Composites (ASC)
Member, International Association for Shell and Spatial Structures (IASS)
Member, American Society for Engineering Education (ASEE)
Member, Canadian Association for Composite Structures and Materials (CACSM)

SELECTED PUBLICATIONS

- Lin, M.W., Thaduri, J., and **Abatan, A.O., 2005**, "Development of an ETDR Distributed Strain Sensor," *Measurement Science and Technology*, Vol. 16, pp. 1495-1505.
- **Abatan, A.**, and Harruna, I., **2004** "Durability Issues Regarding Using FRP Composites for Strengthening Masonry Structures," *ICCE-11*, Hilton Head, South Carolina, August 8-14, pp. 1-2.
- Hu, H., Badir, A., and **Abatan, A., 2003**, "Buckling of a Graphite/Epoxy Composite Plate under Parabolic Variation of Axial Loads," *International Journal of Mechanical Sciences*, Vol. 45, pp. 1135-1147.
- **Abatan, A.**, and Hu, H., **2002**, "Effect of Cross Section Material Distribution on Impact Response of Hybrid Composites," *Thermoplastic Composite Materials*, Vol. 15, No. 5, pp. 375-387.
- Hu, H. and **Abatan, A., 1999**, "Effect of Resin Interlayer on Fracture Behavior of Composite Laminates," *Reinforced Plastics and Composites*, Vol. 18, No. 13, pp. 1186-1196
- **Abatan, A.O.**, Hu, H., and Olowokere, D., **1998**, "Impact Resistance Modeling of Hybrid Laminated Composites," *Journal of Thermoplastic Composite Materials*, Vol. 11, No. 3, May 1998, pp. 249-260.
- **Abatan, A.**, Malluck, J.F., and Tang, Z., **1998**, "Using Coupled-Field Finite Elements to Characterize Piezoelectric Materials," *Sensors*, Vol. 15, No. 6, pp. 46-52.

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EDUCATION

PhD - Complete course work and partial research in Metallurgical Engineering - University of Cincinnati
MS - University of Cincinnati - 1980
BS - University of Cincinnati - 1973

ACADEMIC EXPERIENCE

Assistant Professor - Mechanical Engineering Technology - Miami University - Middletown/Hamilton - 2004 - Present
Visiting Professor - Mechanical Engineering Technology - Miami University - Middletown/Hamilton - 2001 - 2004
Adjunct Professor - Manufacturing Engineering - Miami University - Oxford - 1999-2000
Adjunct Professor - Ferrous Metallurgy and Advanced Metallurgy - Butler County Community College, 1974-1975

CONSULTING / PROFESSIONAL EXPERIENCE

Technical Recruiter, LGA Associates (1999-2001), Senior Metallurgical Engineer Design Development, The Minster Machine Company (1998-1999), Senior Staff Market & Product Development Engineer, Armco Inc. Research Center (1996-1998), Senior Staff Stainless Steel Product Development Engineer, Armco Inc. Research Center (1988-1996), Senior Research Specialty Steel Process Research Engineer, Armco Inc. Research Center (1985-1988), Senior Research Process Engineer - Continuous Casting, Armco Inc. Research Center (1983-1985), Research Engineer & Senior Research Engineer, Tubular Products Armco Inc. Research Center (1975-1983), Plant Metallurgical Engineer - Melting and Electrical Steel Processing, Armco Inc. Butler Works (1973-1975).

PROFESSIONAL REGISTRATION

Registered Professional Engineer – State of Ohio 1976 - Present

PROFESSIONAL ORGANIZATIONS

Iron and Steel Society (AIME), Member 35 years. Chairman Mechanical Working Division 1985-86, Secretary Mechanical Working Division 1984, Member of Board of Directors 1985-1987, Ferrous Metallurgy Grant Committee 8 years, Chairman Research in Progress Committee 6 years, Membership Committee 10 years, Education committee 4 years, Long Range Planning Committee 3 years, American Society for Metals (ASM), Member 39 years 1968 - present, American Society for Testing Materials (ASTM), Member 15 years, American Iron and Steel Institute (AIS) Chairman of Technical Committee on Specialty Tubing, 1979-1982, American Society for Engineering Education 2005-present, Epsilon Pi Tau Gamma Chapter Trustee 2005- present.

PUBLICATIONS, AWARDS, HONORS

Drigel, G.S. “*The Integration of Project Management (PM) into the Senior Design Capstone Experience*”, The International Journal of Applied Management and Technology, Vol 5, Num 2, May 2007
Drigel, G.S. “*Senior Design Capstone – a winning Model*”, International Journal of Modern Engineering International Conference, Newark, NJ, 2006 IJME-Intertech, Conference Proceeding CD Kean University, paper ENT 101-016, October 19-21, 2006
Drigel, G.S. “*Mechanical Models: A Novel Process to Enhance Student Learning*”, 26th annual Lilly Conference on College Teaching Oxford, OH, November 26, 2006
Drigel, G.S. “*From Project Planning to National Champion-BUV Design, Build and Win*”, American Society of Engineering Education National Conference, Chicago, IL, 2006 Annual Conference Proceeding CD & website paper 2006-550, June 21, 2006
Drigel, G.S. “*Cost Effective Mechanical Design in Relation to Material and Structural Rigidity and Design Alternatives*”, American Society of Engineering Education National Conference, Chicago, IL, 2006 Annual Conference Proceeding CD & website paper 2006-197, June 20, 2006
CELT Alumni Teaching Scholar Miami University 2005-2006
Drigel, G.S, and Sarquis, A.M. “*Corrosion of Steel Structures*” paper presentation and workshop, National Science Teacher’s Association (NSTA) National Conference in Dallas, Texas April 20, 2005
D’Agostino, M.; Bleam, B.; McKinney, D.; Criniti, M.B.; Drigel, G.; Vail, H, “Corrosion of Steel Structures” Contributing Author National Science Foundation Advance Technology Education Initiative Grant 0101400. July 2004. *Corrosion of Steel Structures*;

MAJOR AREAS OF INTEREST

Materials Science and Metallurgical Engineering, Failure Analysis, Engineering Education, Cooperative Education, Processing Engineering, Engineering Design, Mechanical Engineering, High Temperature Applications, Metallography, Instrumentation, Technical Recruiting, Industrial Interfacing, Sales and Marketing, Statistical Process Control, Project Management, CAD / CAM.

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EDUCATION

Complete course work and qualifications exams, Ph.D. Aerospace Engineering – University of Cincinnati, 1974
M.S. Aerospace Engineering – University of Cincinnati, 1969
B.S. Mechanical Engineering – University of Kentucky, 1965

ACADEMIC EXPERIENCE

Associate Professor, Miami University, 1983-present
Assistant Professor, Miami University, 1975-1983
Instructor of Engineering, University of Cincinnati, 1969-1975
Part-time instructor of Engineering, University of Cincinnati, 1968-1969

CONSULTING/PROFESSIONAL EXPERIENCE

Partner, Engineering Analysis Associates, 1988-present
Consulting Mechanical Design Engineer, American Fan, 1994-1995
Consulting Mechanical Design Engineer, Consolidated Metals, 1994-1995
Consulting Structural Engineer, Suntech Corporation, 1984-1986
Consulting Heat-transfer Engineer, General Electric Aircraft Engine Group, 1978-1983
Full-time Mechanical Engineer, Shell Oil Company, 1965-1968

PROFESSIONAL ORGANIZATIONS

National Society of Professional Engineers
Hawaii Society of Professional Engineers,
Ohio Society of Professional Engineers,
American Society of Engineering Educators,
American Society of Mechanical Engineers,
American Institute of Aeronautics and Astronautics.

PUBLICATIONS AND PAPERS

“Use of FEA in an Introductory Strength of Materials Course”, ASEE Annual conference, Seattle, WA., 1988;
“Simulation Software in a Dynamics Laboratory”, ASEE Annual Conference, Seattle, WA., 1988;
“Microcomputer Based Parametric Design”, Preprinted for the 35th International Engineering Graphics Conference, 1988;
“Microcomputer Based Parametric Design”, International Journal of Engineering Graphics, 1989;
“Vane Trailing Edge Pressure Side Bleed Slot Film Effectiveness and Heat Transfer Model Test”, General Electric Technical Information Series, 1982;
“Experimental Investigation of the Efficiency of a General Electric Particle Separator”, General Electric Technical Information Series, 1976.

MAJOR INTEREST AREAS

Computer Assisted Instruction for Engineering
Computer Aided Engineering

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EDUCATION

Ph.D. Industrial Engineering, 1992, Pacific Western University
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B.S. Mechanical Engineering, 1982, University of Cincinnati
B.S. Engineering Science (Systems Engineering concentration), 1979, University of Cincinnati
A.S. Electrical Engineering Technology, 1975, University of Cincinnati

INDUSTRIAL EXPERIENCE

1984-1985, Systems Engineer, General Motors
1984, Instructor, Southern Ohio College
1979-1983, Project Engineer, Square D
1974-1979, Test Engineer, Cinergy (formerly Cincinnati Gas and Electric)

RECENT BOOK REVIEWS

“Hitting the Ground Running with Visual C++.NET” by Amiram Neiman. The publisher is Delmar.

PUBLICATIONS

Hergert, D. “Creating Web Based Applications for Instrument Data Transfer Using Visual Studio.NET”, ASEE Annual Conference, Chicago Il, 2006.
Bommaraju, S., Earley R., Hergert, D., “Incorporating Liberal Education Concepts Into Engineering Technology Senior Design Course at Miami University”, ASEE Annual Conference, Nashville, Tn, 2003
Hergert, D., “Instrumentation I/O and Visual Basic”, ASEE Annual Conference, Albuquerque, New Mexico, 2001
Hergert D., Ahner R. “Using Neural Networks to Improve Smoothness on a Paper Coating Process”, Intelligent Engineering Systems Through Artificial Neural Networks Journal, Volume 9, ASME Press, 1999
Hergert, D. “Instrumentation Laboratory Experiment Incorporates Spectral Analysis with Neural Networks”, ASEE Annual Conference, Edmonton, Canada, 1994
Hergert, D. “A Fuzzy Raster Scan to Vector Conversion System for Hot-Wire Cutters”, Computing and Control Engineering Journal, April 1994
Hergert D, Troy D. “Object-Oriented Flexible Manufacturing System”, proceedings of ICOOMS, April 1992
Hergert, D. “A Closed Loop PID Control Program for Process Control”, The International Journal of Applied Engineering Education, Volume 5, Number 1, May 1989

BOOKS

Hergert, D., Thibeault, N. “PC Architecture:From Assembly Language to C”, Prentice Hall, 1998
Hergert, D., Adams, R. “Engineering Math on the TI-92”, Texas Instruments, 1997

GRANTS

1988 Miami Shoup Award	\$1,000
1994 Miami Summer Enrichment Program	\$1,300
1998 Wonderware and ATR Distributing	\$10,000
2000 Ohio Learning Network Grant (with Rod Nimtz and Rob Speckert)	\$100,000
2000 NSF Grant (Columbus State is the principal investigator)	\$7,000
2001 OBR Grant	\$95,000

HONORS AND AWARDS

Teacher of the Year, Miami Hamilton, Presented by the Greater Cincinnati Consortium of Colleges and Universities, 1999
Best Instructional Project, Techno Spectacle, Miami University Middletown, 1999
Who’s Who in Science and Engineering, 1997

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Ph.D. - University of Liverpool – 1974 Electrical Engineering
M.Tech - Indian Institute of Technology – 1970 Electrical Engineering
B.E. - University of Mysore – 1966 Electrical Engineering

ACADEMIC EXPERIENCE

Associate Professor, Manufacturing Engineering, Miami University
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Assistant Professor, Manufacturing Engineering, Miami University
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Assistant Professor, Higher Institute of Mechanical and Electrical
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Assistant Professor, College of Engineering, University of Madras,
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Institute of Technology, 1976-1977

CONSULTING/PROF EXPERIENCE

Consulting Engineer (Evaluations Engineering), Kornylak Corporation, Hamilton, Ohio, 1982; Trainee, Hackbridge, Hewittic and Easun and Co., Ltd., 1969; Junior Engineer (Electrical), Mysore State Electricity Board, 1966-1967

PROFESSIONAL ORGS

Senior Member of Institute of Electrical and Electronics Engineers

PUBLICATIONS AND PAPERS

Total of 45 publications and 38 technical presentations

MAJOR INTEREST AREAS

Electrical and Electronic Engineering, Microprocessor-based Systems,
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Ph.D. Integrated Engineering – Ohio University, June 2003.
M. S. Mechanical Engineering – Ohio University, 1999.
B. Sc. Production Engineering – University of Peradeniya (Sri Lanka) 1994.

ACADEMIC EXPERIENCE

Visiting Instructor, Engineering Technology, Miami University, 2002 – Present.
Instructor, Mechanical Engineering, Ohio University, 2000 – 2002.
Graduate Assistant, Mechanical Engineering, Ohio University, 1996 – 2000.
Assistant Lecturer, University of Peradeniya, 1994 – 1996.

PROFESSIONAL EXPERIENCE

Austral Engineering and Software Inc., Dayton, Ohio, 1998-1999.
Super Technologies International Inc., Athens, Ohio, Part-Time, 1996-2002.

PROFESSIONAL ORGANIZATIONS

American Society of Mechanical Engineers, Member since 1997.
Society of Manufacturing Engineers, Member since 2000.

SELECTED PUBLICATIONS

- Vipul Ranatunga, Enrique A Medina, “A volume-based mapping method for parameter estimation in multi-stage material processing”, Accepted for Journal of Materials Processing Technology.
- Vipul Ranatunga, Jay S. Gunasekera, “Process Modeling of Shape Rolling for Aerospace Industry”, International Mechanical Engineering Congress and Exposition, New Orleans, November 2002.
- Vipul Ranatunga, Jay S. Gunasekera, “Penalty UBET Model for Shape Rolling of Super Alloys”, 14th U.S. National Congress of Theoretical and Applied Mechanics, Blacksburg, VA, June 23-28.
- Vipul Ranatunga, Jay S. Gunasekera, Bhavin V. Mehta, “Application of numerical techniques in metal forming”, 2nd International Seminar on Numerical Analysis in Engineering (NAE-2001), Indonesia, March 2001.
- Vipul Ranatunga, Jay S. Gunasekera, William Garth Frazier, Kwan-Do Hur, Use of UBET for design of flash gap in closed-die forging, Journal of Material Processing Technology, April 2001.

MAJOR AREAS OF INTEREST

Modeling Manufacturing Processes, CAD/CAM Applications, Finite Element Methods, Solid Modeling, Development of Computational Methods in Metal Forming, High-Speed Machining, Structural Analysis of Fuel Cells, Advanced Programming with C/C++ and Matlab.

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B.S. 1964, Electrical Engineering, Electronics and Computers, Univ. of Cincinnati

ACADEMIC EXPERIENCE

Visiting Assistant Professor, Miami University, 2003 – current
Adjunct Professor, Cincinnati State, 2002-2003
Adjunct Professor, Manufacturing Engineering, Central State University, 1998-2003

PROFESSIONAL ORGANIZATIONS

IEEE

CONSULTING/PROFESSIONAL EXPERIENCE

Consulting and/or educational programs for TechSolve, Loveland City Schools, Applied Technology Associates, Raymond Walters College, The Metalworking Group, Cincinnati Milacron, HK Systems, Ohmart Corporation, Steelcraft, Vertex, Sachs Automotive, Robert C. Byrd Institute, Center for Manufacturing Technology, University of Cincinnati, International Consultants Inc, Institute of Advanced Manufacturing Sciences, and Metcut Research. 1991-current.

Cincinnati Milacron: Government Systems Manager 1985-1991; Machine Tool Research & Development Manager 1982-1985; Manufacturing Engineering Manager - Electronic Systems 1978-1981; Operations Analysis Manager 1977-1978; Manufacturing Staff Engineer 1975-1977; Engineering Supervisor 1969-1973; Design Engineer. 1967-1969

General Electric - Evendale, Ohio, Taught electronics and NC maintenance, 1965-1967.

Douglas Aircraft – Santa Monica, California, Summer fellowship, 1964

Cincinnati and Suburban Bell Telephone Co., Co-op. 1960-1963

PUBLICATIONS/PRESENTATIONS

Loveland City Schools" eTech|OHIO web site, 2002,

"Achieving Manufacturing Excellence", Seminar on the NTU satellite network, 1993

"Machining Initiative for Aerospace Subcontractors", presented at CIMTECH Conference, 1987

"Unattended Machining - What Has Been Learned", presented at NMTBA Eastern Manufacturing Technology Conference, 1987

"Significant Advances in Machining Technology", presented at DOD MTAG conference, 1986.

Also Columbia University Conference on Productivity, 1987

"Unattended Machining", presented at SME, IMTS, and other conferences

"Unattended Machining", Carbide and Tool, July/August, 1985

BOOKS

Seifried R., Summers R. "Circuit Analysis I – DC", Orchid Educational Enterprises, 2008

HONORS AND AWARDS

Listed in Who's Who in the Midwest, 23rd edition, 1992-1993

MAJOR AREAS OF INTEREST

Machine controls and sensors

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MBA – University of Cincinnati, 1980, Quantitative Analysis
BS – in Applied Science, Miami University, 1975
Engineering Technology Associate, Cincinnati Technical College, 1973
Engineering Technology Certified Manufacturing Engineer, Academic Jonah of the Avraham Y. Goldratt Institute

ACADEMIC EXPERIENCE

Professor, Miami University, 1997 – present
Associate Professor, Miami University, 1985-1997
Instructor, Program Coordinator, Administrator, Cincinnati Technical College, 1975-1985

CONSULTING/PROFESSIONAL EXPERIENCE

Tipco, Fairfield OH (Continuous Quality Improvement) 2005-present
Training, Feintool Inc., (SPC) 1995-present
Consultant, Ford Motor Company (CNC) 1986
Consultant, Cincinnati Gas and Electric, 1980
Training Specialist, Cincinnati Milacron, 1980
Computer Operator, Kenner Products, 1974-1975
Engineering Assistant, General Electric, Evendale, Ohio, 1973-1974
Machine Operator, Hater Industries, 1971-1973

PROFESSIONAL ORGANIZATIONS

Society of Manufacturing Engineers
Avraham Y. Goldratt Institute

PUBLICATIONS AND PAPERS

“Linkup/BCX”, Manufacturing Simulation Software on IBM and Apple computers
“Teaching Computer Integrated Manufacturing in the Interdisciplinary Classroom”
“TQM: The topics, Tools, and Techniques for your classroom”

MAJOR INTEREST AREAS

Computer Applications to Automated Factories
Continuous Quality Improvement

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EDUCATION

Ph.D Electrical and Computer Engineering, Wichita State University, 2005
M. S. Physics and Electronics, Najah National University, 1998
B. Sc. Physics and Electronics, Najah National University, 1995

ACADEMIC EXPERIENCE

-Visiting Assistant Professor, Engineering Technology, Miami University, Aug 2008-Present
- Faculty of Communication and Electronics Engineering, ITT Technical Institute, Maryland Sep 2007- Aug 2008
Postdoctoral Researcher, Electrical and Computer Engineering Department
Louisiana State University, Louisiana, Aug2006-Aug2007
-Visiting Assistant Professor, Electrical and Computer Engineering Department
West Virginia University Institute of Technology, Oct 2005- July 2006
-RF Engineering, Sprint Nextel communication, Florida, April 2005-Oct2006
-Graduate Research Assistant, Electrical and Computer Engineering Department, Wichita State University, Wichita, KS Aug 2001 -
Mar2005

WORKED PROJECTS

-Worked in project "Smart Antenna for Future US Army Frequency-Hopping Communications Systems," US Army – DEPSCoR, Wichita state University, KS
-Worked in project supported from Aerospace Sensor Networks Technology Thrust, Minority Leader's Program, AFRL/Clarkson Aerospace, Louisiana State University

AWARDS AND HONORS

-Outstanding PhD Award in Electrical and Computer Engineering Wichita State University Spring 2004.
-Published More than 30 Journal and conference papers in the areas of signal processing and wireless communication

SELECTED PUBLICATIONS

1. Nizar Tayem and Hyuck M. Kwon, "Azimuth and Elevation Angle Estimation with No Failure and No Eigen Decomposition," Elsevier Signal Processing Journal, Volume 86, Issue 1, Pages 8-16, January 2006.
2. Nizar Tayem and Hyuck M. Kwon, "L-Shape 2-Dimensional Arrival Angle Estimation with Propagator Method," *IEEE Transactions on Antennas and Propagation*, Vol. 53, No. 5, pp. 1622-1630, May 2005.
3. Nizar Tayem and Hyuck M. Kwon, "Conjugate ESPRIT (C-SPRIT)," *IEEE Transactions on Antennas and Propagation*, Vol. 52, No. 10, pp. 2618-2624, October 2004.
4. Kareem Al Jabr, Hyuck M. Kwon, and Nizar Tayem, "Modified UCA-ESPRIT for Estimating DOA of Coherent Signals Using One Snapshot," IEEE Vehicular Technology Conference, Spring 2008
5. N.Tayem and M. Naraghi-Pour, "Unitary MUSIC algorithm for Source bearing estimation," IEEE Vehicular Technology Conference, Baltimore, MD, 30 September 3 October 2007
6. N.Tayem and M. Naraghi-Pour, "Propagator Method and Triangular Factorization for Source Bearing Estimation," accepted at IEEE Military Communications Conference, Orlando, Florida, October 29-31 2007

TECHNICAL REPORTS

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