

# Technical Institute

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## OBJECTIVES

The Technical Institute is a division of the School of Engineering and has as its objective the collegiate education of young men and women to be competent engineering and scientific technicians.

It is the philosophy of the Technical Institute that this objective is best accomplished by:

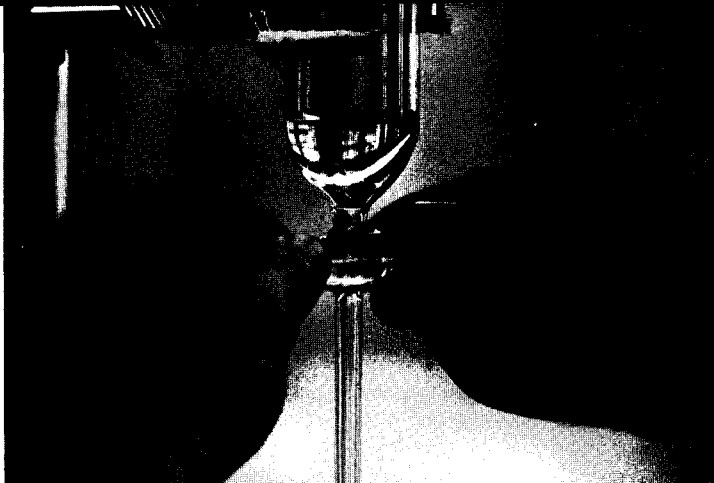
1. Providing specialized technical courses which emphasize the use of rational thinking and the application of scientific principles to the practical solution of technological problems.
2. Providing courses in mathematics and basic science sufficient to support the technical courses and to prepare the student for future growth.
3. Providing education to prepare the student to communicate intelligently and to take his place in society as a responsible Christian citizen.

## THE ENGINEERING TECHNICIAN

An engineering technician is one who works in the engineering field. His work requires the application of established engineering knowledge and methods combined with technical skills in the support of engineering activities. He differs from the craftsman and the draftsman in his knowledge of engineering theory and methods. He also differs from the engineer in his more specialized background and his use of technical skills.

It should be noted that the engineering technician is concerned with the *application* of established scientific and engineering knowledge and methods. Therefore, Technical Institute programs consist of courses especially designed to emphasize the *use* of engineering knowledge. The engineering technician, as stated above, works in the support of engineering activities. He is usually involved in the design, testing, sales, and construction of products, and in some instances the supervision of craftsmen or other technicians. The engineering technician is a definite part of the scientific-engineering team. He works with the scientist who develops the theory, the engineer who seeks means of making effective use of this theory, and the skilled craftsman who works with tools to construct the finished product.

The current shortage of engineers has increased the use of engineering technicians by industry and engineering technicians themselves are in short supply. The need for competent engineering technicians educated at the college level is high and the future holds a bright prospect for those who are in this field.



## PROGRAMS OFFERED

### *Associate Degree Curricula*

The Technical Institute offers programs in chemical technology, electronic engineering technology, industrial engineering technology, and mechanical engineering technology leading to the associate degree. These programs are five terms in length and include specialized technical subjects, non-technical subjects, mathematics and science. Upon satisfactory completion of the prescribed courses in the programs outlined on the following pages the student is awarded the Associate in Technology degree. The holder of such a degree is prepared to enter industry as a beginning engineering technician.

### *Bachelor of Technology Degree*

Since education is a lifelong process, some engineering technicians desire to continue their education. In particular, many wish to broaden their technical background to include areas other than their associate degree specialization. The objectives of the Bachelor of Technology program are to offer graduates from the associate degree programs the opportunity to broaden themselves technically as well as culturally. The requirements for this degree are outlined in the program on a following page.

## GUIDANCE AND COUNSELING

The facilities of the Guidance Center are available for Technical Institute students. Staff members experienced in this type of program will be on hand before and during registration. Prospective students are encouraged to visit the campus or telephone for information regarding any of the programs offered.

## CREDITS

All courses in the Technical Institute are evaluated on a semester hour basis. Recitation and similar classroom work generally require outside preparation, while laboratory or practice periods are usually self-contained.

## CHEMICAL TECHNOLOGY

Chemical technology is designed to prepare students for technological services in chemical manufacturing plants and processing industries as well as for technical positions in chemical laboratories.

Emphasis is placed upon laboratory procedures for basic chemical analysis, especially quantitative analysis, certain non-technical subjects, mathematics, and physics.

**PROGRAM—T1: ASSOCIATE IN TECHNOLOGY WITH MAJOR IN  
CHEMICAL TECHNOLOGY**

<i>Dept.</i>	<i>No.</i>	<i>Course</i>	<i>1st Term</i> <sup>1</sup>	<i>2nd Term</i>	<i>3rd Term</i>
<i>Freshman Year</i>					
CTI	101	Inorganic Chemistry		3-3-4	
ITI	101	Industrial Organization & Production		3-0-3	
MIL <sup>2</sup>	101-2	First Year Basic Course	2-1-1	2-1-1	
MTI	103L	Technical Drawing		0-6-2	
STI	100	Orientation	1-0-0		
PHL	106	Problems in Philosophy I	3-0-3		
STI	105-6	Technical Institute Mathematics	3-0-3	3-0-3	
STI	114	Physics: Mechanics		2-2-2½	
STI	122	Industrial Chemistry	3-3-4		
STI	130	English Composition	3-0-3		
STI	134	Effective Speaking		2-0-2	
THL <sup>3,5</sup>	—	Theology elective	3-0-3		
			17	17½	
<i>Sophomore Year</i>					
CTI	202	Quantitative Analysis	3-6-5		
CTI	203	Physical Chemistry		3-3-4	
CTI	206	Instrumentation		3-0-3	
CTI	208-9	Organic Chemistry	3-3-4	3-3-4	
ITI	203	Elements of Supervision		2-0-2	
MIL <sup>4</sup>	201-2	Second Year Basic Course	2-1-1	2-1-1	
STI	213	Physics: Electricity		2-2-2½	
STI	214	Physics: Heat, Light & Sound	2-2-2½		
STI	252	American Political Ideas	3-0-3		
THL <sup>5</sup>	220	Theology of Christ	3-0-3		
			18½	16½	
<i>Junior Year</i>					
CTI	307	Applied Chemistry	2-0-2		
CTI	301	Metallurgy	3-0-3		
CTI	302	Chemical Engineering Technology	3-3-4		
PHL	206	Problems in Philosophy II	3-0-3		
STI	234	Report Writing	2-0-2		
STI	251	Economics of Industry	3-0-3		
			17		

<sup>1</sup>Under "Term," 3-0-3 means 3 hrs. class, 0 hrs. laboratory, and 3 hrs. credit.

<sup>2</sup>Women take EdP 110-1; men not taking R.O.T.C. take EdP 101-2.

<sup>3</sup>Non-Catholic students consult General Curriculum Requirements.

<sup>4</sup>Women take EdP 112-3; men not taking R.O.T.C. take EdP 201-2.

<sup>5</sup>Catholic Freshmen elect from Thl 110, 152, 153, 154.

**ELECTRONIC ENGINEERING TECHNOLOGY**

Electronic engineering technology is designed to prepare students for services as engineering technicians in the modern industrial world. Emphasis is placed on the fundamentals of circuit-theory, electronics, and measurements in addition to related courses in mathematics, physics, and chemistry. The graduate is thus prepared to perform research

and development, serve with manufacturers of electronic equipment, and with users of modern electrical and electronic devices. An E.C.P.D. accredited Engineering Technology curriculum.

**PROGRAM—T2: ASSOCIATE IN TECHNOLOGY WITH MAJOR IN  
ELECTRONIC ENGINEERING TECHNOLOGY**

<i>Dept.</i>	<i>No.</i>	<i>Course</i>	<i>1st Term<sup>1</sup></i>	<i>2nd Term</i>	<i>3rd Term</i>
<i>Freshman Year</i>					
ETI	102	Elements of Electrical Technology I		3-0-3	
ETI	222L	Electronic Circuit Diagrams		0-3-1	
ITI	101	Industrial Organization & Production	3-0-3		
MIL <sup>2</sup>	101-2	First Year Basic Course	2-1-1	2-1-1	
STI	100	Orientation	1-0-0		
PHL	106	Problems in Philosophy I	3-0-3		
PHL	206	Problems in Philosophy II		3-0-3	
STI	105-6	Technical Institute Mathematics	3-0-3	3-0-3	
STI	122	Industrial Chemistry		3-3-4	
STI	130	English Composition	3-0-3		
STI	134	Effective Speaking		2-0-2	
THL <sup>3,5</sup>	—	Theology elective	3-0-3		
			16	17	
<i>Sophomore Year</i>					
ETI	204	Electrical Measurements	2-3-3		
ETI	103	Elements of Electrical Technology II	3-3-4		
ETI	205	Electronic Measurements		3-3-4	
ETI	206	Electron Devices I		3-3-4	
ETI	300	Seminar	1-0-0	1-0-0	
ETI	324	Digital Computer Fundamentals		3-3-4	
MIL <sup>4</sup>	201-2	Second Year Basic Course	2-1-1	2-1-1	
STI	114	Physics: Mechanics	2-2-2½		
STI	205	Mathematics for Electrical Technology	3-0-3		
STI	214	Physics: Heat, Light & Sound		2-2-2½	
STI	234	Report Writing	2-0-2		
STI	251	Economics of Industry		3-0-3	
THL <sup>5</sup>	220	Theology of Christ	3-0-3		
			18½	18½	
<i>Junior Year</i>					
ETI	300	Seminar	1-0-0		
ETI	306	Electron Devices II	3-3-4		
ETI	327	Pulse Circuit Fundamentals	3-0-3		
ETI	328	Electronic Communications	3-3-4		
ETI	330	Special Electronic Projects	1-0-1		
ITI	203	Elements of Supervision	2-0-2		
STI	252	American Political Ideas	3-0-3		
			17		

<sup>1</sup>Under "Term," 3-0-3 means 3 hrs. class, 0 hrs. laboratory, and 3 hrs. credit.

<sup>2</sup>Women take EdP 110-1; men not taking R.O.T.C. take EdP 101-2.

<sup>3</sup>Non-Catholic students consult General Curriculum Requirements.

<sup>4</sup>Women take EdP 112-3; men not taking R.O.T.C. take EdP 201-2.

<sup>5</sup>Catholic Freshmen elect from Thl 110, 152, 153, 154.

## INDUSTRIAL ENGINEERING TECHNOLOGY

The curriculum in industrial engineering technology has as its objective the implementation of the broad purposes of the University in a college program of technical education by:

- (1) Providing education to prepare students for subsequent development as responsible Christian citizens;
- (2) Providing education in mathematics and basic sciences sufficient to support the specialized technical portion of the curriculum and to increase the student's awareness of fundamental scientific principles in order to facilitate his future growth in an advancing technology;
- (3) Providing specialized education designed to prepare students primarily for technological services to management in such industrial engineering areas as production, operations and control. It also covers the essentials of management with which foremen, supervisors, and administrative personnel in general are concerned.

Emphasis is placed on courses in motion and time study, production control, plant layout, quality control, and cost control. An E.C.P.D. accredited Engineering Technology curriculum.



## PROGRAM—T3: ASSOCIATE IN TECHNOLOGY WITH MAJOR IN INDUSTRIAL ENGINEERING TECHNOLOGY

<i>Dept.</i>	<i>No.</i>	<i>Course</i>	<i>1st Term<sup>1</sup></i>	<i>2nd Term</i>	<i>3rd Term</i>
<i>Freshman Year</i>					
ITI	101	Industrial Organization & Production	3-0-3		
ITI	104	Industrial Materials and Processes		3-0-3	
MIL <sup>2</sup>	101-2	First Year Basic Course	2-1-1	2-1-1	
MTI	103L	Technical Drawing		0-6-2	
MTI	106L	Testing and Measurements		0-3-1	
MTI	107L	Machine Tool Operation		0-3-1	
STI	100	Orientation	1-0-0		
PHL	106	Problems in Philosophy I	3-0-3		
STI	105-6	Technical Institute Mathematics	3-0-3	3-0-3	
STI	114	Physics: Mechanics		2-2-2½	
STI	130	English Composition	3-0-3		
STI	134	Effective Speaking		2-0-2	
STI	234	Report Writing		2-0-2	
THL <sup>3,5</sup>	—	Theology elective	3-0-3		
			16	17½	
<i>Sophomore Year</i>					
ITI	108	Production Methods & Control	3-0-3		
ITI	203	Elements of Supervision		2-0-2	
ITI	215	Elements of Cost Control	2-0-2		
ITI	216	Quantitative Methods in Ind. Eng. Tech.		3-0-3	
ITI	217	Industrial Economic Analysis		3-0-3	
ITI	230	Motion and Time Study I		2-3-3	
MIL <sup>4</sup>	201-2	Second Year Basic Course	2-1-1	2-1-1	
MTI	213	Industrial Mechanisms	3-0-3		
STI	122	Industrial Chemistry	3-3-4		
STI	213	Physics: Electricity		2-2-2½	
STI	214	Physics: Heat, Light & Sound	2-2-2½		
STI	251	Economics of Industry		3-0-3	
THL <sup>5</sup>	220	Theology of Christ	3-0-3		
			18½	17½	
<i>Junior Year</i>					
ITI	305	Labor & Wage Administration	3-0-3		
ITI	318	Statistical Quality Control	3-0-3		
ITI	331	Motion and Time Study II	2-3-3		
ITI	332	Plant Layout	2-3-3		
PHL	206	Problems in Philosophy II	3-0-3		
STI	252	American Political Ideas	3-0-3		
			18		

<sup>1</sup>Under "Term," 3-0-3 means 3 hrs. class, 0 hrs. laboratory, and 3 hrs. credit.<sup>2</sup>Women take EdP 110-1; men not taking R.O.T.C. take EdP 101-2.<sup>3</sup>Non-Catholic students consult General Curriculum Requirements.<sup>4</sup>Women take EdP 112-3; men not taking R.O.T.C. take EdP 201-2.<sup>5</sup>Catholic Freshmen elect from Thl 110, 152, 153, 154.



### MECHANICAL ENGINEERING TECHNOLOGY

This curriculum is designed to give the student a practical knowledge of the modern fundamental principles of mechanical engineering technology as they are applied in industrial and scientific endeavor.

Emphasis is placed on courses in applied mechanics; strength of materials; mechanism; thermodynamics; fluid mechanics; electronic technology; industrial automation actuation; dies, jig and fixture design; machine design, and basic technical courses such as technical drawing, physics, mathematics and chemistry which prepare a graduate to perform successfully as an aide to scientists and professional engineers.

The non-technical courses English, speech and report writing are specially designed to teach a student how to formulate and deliver technical communications, both oral and written.

Typical mechanical engineering technician assignments are research and development laboratory technician, board designer, technical report writer, erection and maintenance technician, field service and customer relations technician, plant engineering technician and industrial automation actuation technician. An E.C.P.D. accredited Engineering Technology curriculum.

**PROGRAM—T4: ASSOCIATE IN TECHNOLOGY WITH MAJOR IN  
MECHANICAL ENGINEERING TECHNOLOGY**

<i>Dept.</i>	<i>No.</i>	<i>Course</i>	<i>1st Term</i> <sup>1</sup>	<i>2nd Term</i>	<i>3rd Term</i>
<i>Freshman Year</i>					
ITI	101	Industrial Organization & Production	3-0-3		
ITI	104	Industrial Materials & Processes		3-0-3	
MIL <sup>2</sup>	101-2	First Year Basic Course	2-1-1	2-1-1	
MTI	103L	Technical Drawing		0-6-2	
STI	100	Orientation	1-0-0		
PHL	106	Problems in Philosophy I	3-0-3		
STI	105-6	Technical Institute Mathematics	3-0-3	3-0-3	
STI	114	Physics: Mechanics		2-2-2½	
STI	122	Industrial Chemistry		3-3-4	
STI	130	English Composition	3-0-3		
STI	234	Report Writing		2-0-2	
THL <sup>3,5</sup>	—	Theology elective	3-0-3		
			16	17½	
<i>Sophomore Year</i>					
ITI	203	Elements of Supervision	2-0-2		
MIL <sup>4</sup>	201-2	Second Year Basic Course	2-1-1	2-1-1	
MTI	104L	Graphical Computations	0-6-2		
MTI	106L	Testing and Measurements	0-3-1		
MTI	107L	Machine Tool Operation		0-3-1	
MTI	221	Strength of Materials		3-0-3	
MTI	224	Statics	2-0-2		
MTI	225	Dynamics	2-0-2		
MTI	226L	Mechanism	1-3-2		
MTI	321L	Dies, Jigs, and Fixtures		1-3-2	
MTI	230	Thermodynamics		2-0-2	
MTI	231	Fluid Mechanics		3-0-3	
STI	206	Mathematics for Mechanical Engineering Technology	3-0-3		
STI	213	Physics: Electricity		2-2-2½	
STI	214	Physics: Heat, Light & Sound	2-2-2½		
STI	252	American Political Ideas		3-0-3	
			17½	17½	
<i>Junior Year</i>					
MTI	328	Industrial Automation Actuation	2-3-3		
MTI	323	Machine Design	2-3-3		
PHL	206	Problems in Philosophy II	3-0-3		
STI	134	Effective Speaking	2-0-2		
STI	251	Economics of Industry	3-0-3		
THL <sup>5</sup>	220	Theology of Christ	3-0-3		
			17		

<sup>1</sup>Under "Term," 3-0-3 means 3 hrs. class, 0 hrs. laboratory, and 3 hrs. credit.

<sup>2</sup>Women take EdP 110-1; men not taking R.O.T.C. take EdP 101-2.

<sup>3</sup>Non-Catholic students consult General Curriculum Requirements.

<sup>4</sup>Women take EdP 112-3; men not taking R.O.T.C. take EdP 201-2.

<sup>5</sup>Catholic Freshmen elect from Th1 110, 152, 153, 154.



**BACHELOR OF TECHNOLOGY**

The curriculum is designed to provide the opportunity for those who hold the Associate in Technology degree to continue their education. Emphasis is placed upon broadening the student's technical knowledge. Flexibility in the curriculum permits the student with his advisor's consent to plan an individual program based on his needs, interests, educational background and occupational objectives.

**PROGRAM—T5: BACHELOR OF TECHNOLOGY**

Degree requirements for the Bachelor of Technology:

A. Completion of the requirements for the Associate in Technology degree.

B. Completion of a minimum of 45 additional credit hours distributed as follows:

<i>Dept.</i>	<i>No.</i>	<i>Course</i>	<i>Credits</i>
—	—	English electives	6
STI	305	Advanced Technical Institute Math.	3
PSY	201	Introductory Psychology	3
THL <sup>1</sup>	—	Theology elective	2
—	—	Non-Technical electives	9
—	—	Approved Technical electives	21
			<u>44</u>

<sup>1</sup>Non-Catholics consult General Curriculum Requirements.

