Technology, Art, and Design

The Department of Technology, Art and Design offers a variety of programs that span the application of technology, art and design in response to a range of human wants and needs. Courses nurture the development of individual creative expression, critical thinking and problem solving skills. Degree programs foster the development of knowledge and skills to design and develop creative solutions that address operations and future needs in an array of cultural, design, business, technological and industrial settings.

The department offers a nationally accredited* Bachelor of Science program in Industrial Technology, with specializations in Construction Management and Manufacturing Management. Along with the associated Bachelor of Applied Science programs in Applied Engineering and Technology Management, these degree options offer both four-year and transfer students the opportunity to prepare for leadership roles in a wide range of technologically based enterprises including but not limited to the fields of construction, energy, manufacturing and sustainability.

Transfer students have the option to enroll in either the Bachelor of Applied Science program in Applied Engineering or Technology Management. Both degrees are offered as "2 + 2" programs online or on campus for working professionals who have either an Associate of Science degree, Associate of Applied Science degree, diploma or certificate and wish to complete a Bachelor's degree.

The Bachelor of Science in Art and Design offers students a unique and exciting opportunity to pursue careers that demand excellence in a combination of technical, creative, and artistic capabilities. Students can pursue specializations in either Studio Arts or Digital and Exhibit Design. All Art and Design students benefit from a portfolio review process, a graduation requirement that offers them the opportunity to present their professional portfolios to leaders in their industries from across the nation. Students transferring from a MnSCU Community and/or Technical College with an Associate degree in a related design field may be eligible for articulated transfer into the Art and Design program.

The Department of Technology, Art and Design offers five exhibition spaces that present local, regional, national and international exhibits. The gallery program also maintains permanent collections in ceramics and prints.

*The BS in Industrial Technology is accredited by the Association of Technology, Management, and Applied Engineering (http://atmae.org).

Programs

- Applied Engineering, B.A.S. *major*
- Design Technology, B.S. *major*
- Industrial Technology, B.S. (Construction Management Emphasis) *major*
- Industrial Technology, B.S. (Manufacturing Management Emphasis) *major*
- Industrial Technology, B.S. (Manufacturing Technology Emphasis) *major*
- Technology Management, B.A.S. *major*

Career Directions

Applications Engineering
Art Director
Artist/Technician
Construction Management
Construction Management Engineer
Engineer
Exhibit Designer
Field Engineer
Graphic Designer
Industrial/Architectural Rendering
Management
Manufacturing Engineering
Model Building
Multimedia Specialist/Designer
Pre-press Production
Print Production
Process Planning
Quality Control Engineering
Research and Development
Safety Engineer
Teaching
Technical Sales
Web Page Development
Also: Graduate Study

Preparation

Recommended High School Courses
Drafting
Graphic Arts
Production
Construction
Manufacturing
Electronics
Robotics
Art/Fine Arts
CADD/Computer Programming
Project Lead the Way classes

Applied Engineering, B.A.S. *major*

The Applied Engineering Program is designed to prepare individuals to work in a variety of applied engineering career paths in business or industry. The program is designed specifically for individuals who typically possess a two-year technical degree and are interested in advancing their professional career. The program is a "2+2" degree that permits students to apply their 2 year technical degree credits toward a baccalaureate degree. Coupled with a two-year technical degree providing a focused foundation, students will complete junior- and senior-level courses covering a broad range of applied engineering concepts and applications. This breadth will provide maximum flexibility for graduates to pursue diverse

employment opportunities. Completion of the degree is available through a web-based distance delivery format. Students should work closely with an advisor to obtain program and course selection information.

Required Credits: 69
Required GPA: 2.25

I REQUIRED TECHNICAL CORE COURSES

Requires 26 technical credits transferred from an A.S. or A.A.S. degree, or a diploma (e.g., Manufacturing Technology, Automation Technology)

II REQUIRED APPLIED ENGINEERING TECHNOLOGY CORE

COMPLETE THE FOLLOWING COURSES:

- IT 3100 Principles and Practices of Professional Development (2 credits)
- IT 3267 Engineering Cost Analysis (3 credits)
- IT 3460 Parametric 3-D Modeling (3 credits)
- IT 3700 Production Planning and Control (3 credits)
- IT 3877 Engineering Problem Solving (3 credits)
- IT 4460 Design for Manufacturability (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4879 Service Process Design and Improvement (3 credits)
- IT 4897 Project Management (3 credits)

III APPLIED ENGINEERING TECHNOLOGY ELECTIVES

SELECT 14 CREDITS FROM THE FOLLOWING WITH ASSISTANCE FROM A FACULTY ADVISOR:

- BUAD 3281 Decision Support Systems (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- ENGL 3155 Professional Writing (3 credits)
- IT 3217 Materials Science And Metallurgy (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3879 Performance Measurement (3 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 4537 Industrial Design (3 credits)
- IT 4777 Advanced Topics in Quality (3 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4880 Total Quality Management (3 credits)
- IT 4970 Internship (1-12 credits)

IV REQUIRED ENGINEERING CAPSTONE

COMPLETE THE FOLLOWING COURSE:

- IT4820

Degree Summary

Required Technical Core (26 credits)
Required Applied Engineering Technology Core (26 credits)***
Applied Engineering Technology Electives (14 credits)***
Required Engineering Capstone (3 credits)
Liberal Education (42 credits)
Free Electives (17 credits)
Total = 128 credits

***Applied Engineering Technology Core credits (26) plus Applied Engineering Technology Electives credits (14) = 40 upper division credit requirement.

Note: Upon approval of the Technological Studies staff, certain major courses may be substituted in the Applied Engineering Technology Core and/or Applied Engineering Technology Electives from related Technical and Community College Programs.

Design Technology, B.S. *major*

Design Technology is a unique applied design program that integrates the excitement of design and illustration with the knowledge and control of graphic technology as professional preparation for an array of careers in business and industry.

The Design Technology program is an innovative interdisciplinary course of study. It couples a liberal arts context with a selection of courses drawn from three University departments. Beyond a common foundation core and culminating core, each student acquires more specialized training within a major specialization area. Students gain a solid university education along with an opportunity to acquire specialized training in a professional field of their choice.

Design Technology students are involved in a full range of learning experiences from concept and design through the actual production of the finished product. The constant demand for Bemidji State University Design Technology graduates reinforces the belief that this total design approach provides students with skillful techniques while allowing them to remain flexible in a variety of professional assignments.

The Design Technology program requires a minimum overall G.P.A. of 2.75 after the 1000-level major courses for students to remain and graduate with a Design Technology major. Students must be a declared major to register for most 2000-, 3000-, and 4000-level major courses.

Required Credits: 68
Required GPA: 2.75

REQUIRED FOUNDATION CORE

COMPLETE THE FOLLOWING COURSES:

- ARTH 3559 History Of Modern Design (3 credits)
- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1501 Technical Foundations I (4 credits)
- IT 1502 Technical Foundations II (4 credits)
- VSAR 1101 Visual Foundations I (3 credits)
- VSAR 1102 Visual Foundations II (3 credits)
- VSAR 2107 Visual Foundations III (3 credits)

A. DIGITAL DESIGN/ELECTRONIC SPECIALIZATION

REQUIRED COURSES
COMPLETE THE FOLLOWING COURSES:

- IT 1460 Technical Graphics (3 credits)
- IT 2410 Photographic/Electronic Imaging (3 credits)
- IT 3410 Digital Video (3 credits)
- IT 3430 3-D Computer Imaging I (4 credits)
- IT 3520 Multimedia Processes I (4 credits)
- IT 4430 3-D Computer Imaging II (4 credits)
- IT 4520 Multimedia Processes II (4 credits)
- VSAR 2701 Graphic Design (3 credits)

SELECT 9 SEMESTER CREDITS FROM THE FOLLOWING COURSES

WITH CONSENT OF PROGRAM ADVISOR:

- CS 1107 Introduction to Computers (3 credits)
- IT 3420 Publication Processes I (4 credits)
- IT 3499 Exhibit Design (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 4568 Topics In Computer Imaging (to be subtitled) (2 credits)
- IT 4817 Senior Project I (2 credits)
- IT 4818 Senior Project II (2 credits)
- MASC 1840 Introduction to Media Writing (3 credits)
- VSAR 2702 Typography And Layout (3 credits)
- VSAR 3707 Product and Identity Design (3 credits)

B. DIGITAL DESIGN/PRINT SPECIALIZATION

REQUIRED COURSES
COMPLETE THE FOLLOWING COURSES:

- IT 2410 Photographic/Electronic Imaging (3 credits)
- IT 3420 Publication Processes I (4 credits)
- IT 3520 Multimedia Processes I (4 credits)
- IT 4420 Publication Processes II (4 credits)
- VSAR 2701 Graphic Design (3 credits)
- VSAR 2702 Typography And Layout (3 credits)
- VSAR 3707 Product and Identity Design (3 credits)

REQUIRED ELECTIVES
SELECT 13 SEMESTER CREDITS FROM THE FOLLOWING COURSES
WITH CONSENT OF PROGRAM ADVISOR:

- IT 1460 Technical Graphics (3 credits)
- IT 3410 Digital Video (3 credits)
- IT 3430 3-D Computer Imaging I (4 credits)
- IT 3499 Exhibit Design (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 4520 Multimedia Processes II (4 credits)
- IT 4568 Topics In Computer Imaging (to be subtitled) (2 credits)
- IT 4817 Senior Project I (2 credits)
- IT 4818 Senior Project II (2 credits)
- MASC 1840 Introduction to Media Writing (3 credits)
- MASC 2600 Principles of Advertising (3 credits)

C. EXHIBIT DESIGN SPECIALIZATION

REQUIRED COURSES
COMPLETE THE FOLLOWING 8 COURSES:

- IT 1460 Technical Graphics (3 credits)
- IT 3430 3-D Computer Imaging I (4 credits)
- IT 3499 Exhibit Design (3 credits)
- IT 3599 Exhibit Processes I (4 credits)
- IT 4430 3-D Computer Imaging II (4 credits)
- IT 4599 Exhibit Processes II (4 credits)
- IT 4699 Advanced Exhibit Design (4 credits)
- VSAR 2701 Graphic Design (3 credits)

REQUIRED ELECTIVES
SELECT 8 SEMESTER CREDITS FROM THE FOLLOWING COURSES

WITH CONSENT OF PROGRAM ADVISOR:

- IT 2410 Photographic/Electronic Imaging (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 4568 Topics In Computer Imaging (to be subtitled) (2 credits)
- IT 4817 Senior Project I (2 credits)
- IT 4818 Senior Project II (2 credits)
- VSAR 2702 Typography And Layout (3 credits)
- VSAR 3707 Product and Identity Design (3 credits)

D. MODEL DESIGN SPECIALIZATION

REQUIRED COURSES
COMPLETE 31 SEMESTER CREDITS FROM THE FOLLOWING COURSES

- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1460 Technical Graphics (3 credits)
- IT 1600 Modeling Communications (3 credits)
- IT 2607 Model Molding, Casting, and Finishing (4 credits)
- IT 2608 Computer-Controlled Machining (3 credits)
- IT 3600 Architectural/Engineering Model Making (4 credits)
- IT 3610 Industrial Prototypes (4 credits)
- IT 4600 Model Culmination (2 credits)

REQUIRED ELECTIVES
SELECT 6 SEMESTER CREDITS FROM THE FOLLOWING COURSES

WITH CONSENT OF PROGRAM ADVISOR:

- IT 1410 Communication Technology (3 credits)
- IT 2640 Model Lighting And Controls (3 credits)
- IT 3430 3-D Computer Imaging I (4 credits)
- IT 3460 Parametric 3-D Modeling (3 credits)
- IT 4430 3-D Computer Imaging II (4 credits)
- IT 4537 Industrial Design (3 credits)
- IT 4568 Topics In Computer Imaging (to be subtitled) (2 credits)
- IT 4600 Model Culmination (2 credits)

REQUIRED CULMINATION CORE

COMPLETE THE FOLLOWING COURSES:

- IT 3810 Portfolio Preparation (1 credit)
  or VSAR 3810 Portfolio Preparation (1 credit)
- IT 4810 Portfolio Presentation (1 credit)
  or VSAR 4810 Portfolio Presentation (1 credit)
- IT 4819 Design Management (4 credits)

REQUIRED CULMINATION CORE

SELECT 4 SEMESTER CREDITS FROM THE FOLLOWING COURSES:

- IT 4817 Senior Project I (2 credits)
- IT 4818 Senior Project II (2 credits)
- IT 4970 Internship (1-12 credits)
- VSAR 4970 Internship (1-8 credits)

This degree audit is for Design Technology students accepted under an articulation agreement. Transfer courses have been accepted to complete part of your degree. You are responsible for completing the following requirements.

COMPLETE 27 SEMESTER CREDITS AT THE 3000 OR 4000 LEVEL IN ANY SPECIALIZATION EXCEPT MODEL DESIGN. THE APPROVED

COURSE LIST IS BELOW.

- IT 3410 Digital Video (3 credits)
- IT 3430 3-D Computer Imaging I (4 credits)
- IT 3520 Multimedia Processes I (4 credits)
- IT 4430 3-D Computer Imaging II (4 credits)
- IT 4520 Multimedia Processes II (4 credits)
- IT 3420 Publication Processes I (4 credits)
- IT 3499 Exhibit Design (3 credits)
- IT 3599 Exhibit Processes I (4 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 4568 Topics In Computer Imaging (to be subtitled) (2 credits)
- IT 4817 Senior Project I (2 credits)
- IT 4818 Senior Project II (2 credits)
- IT 4420 Publication Processes II (4 credits)
- IT 4599 Exhibit Processes II (4 credits)
- IT 4699 Advanced Exhibit Design (4 credits)
- VSAR 3707 Product and Identity Design (3 credits)

SUGGESTED SEMESTER SCHEDULE FOR DESIGN TECHNOLOGY MAJOR, B.S.

The following is a list of required Design Technology major courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Note: See Visual Arts for VSAR course descriptions.

Freshman

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1501 Technical Foundations I (4 credits)
- IT 1502 Technical Foundations II (4 credits)
- VSAR 1101 Visual Foundations I (3 credits)
- VSAR 1102 Visual Foundations II (3 credits)
- Liberal Education requirements

Sophomore

- VSAR 2107 Visual Foundations III (3 credits)
- Major Specialization Required Courses
- Liberal Education requirements

Junior

- Major Specialization Required Courses
- ARTH 3559 History Of Modern Design (3 credits)
- Major Specialization Electives
- Liberal Education requirements

Senior

- Major Specialization Required Courses
- Major Specialization Electives
- Major Culminating Courses
- Liberal Education requirements

Industrial Technology, B.S. *major*
Construction Management Emphasis

Required Credits: 81
Required GPA: 2.25

I REQUIRED TECHNICAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 1460 Technical Graphics (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- IT 3310 Fluid Power (3 credits)
- IT 4537 Industrial Design (3 credits)

II REQUIRED PROFESSIONAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)

III REQUIRED FOUNDATION COURSES

TAKE 6 SEMESTER CREDITS OF MATH AT THE 1100 OR HIGHER LEVEL. STUDENTS ARE ENCOURAGED TO TAKE STATISTICS AND CALCULUS.

TAKE 7 SEMESTER CREDITS FROM AMONG THE PHYSICS, CHEMISTRY, OR PHYSICAL SCIENCE (SPECIFICALLY, SCI 1110 AND SCI 1120) COURSES THAT ARE APPROVED TO FULFILL LIBERAL EDUCATION CATEGORY 3. OTHER CATEGORY 3 COURSES
MAY BE SUBSTITUTED IF APPROVED BY THE CHAIR OF THE DEPARTMENT OF TECHNOLOGICAL STUDIES.

CONSTRUCTION MANAGEMENT EMPHASIS

BLOCK I-COMPLETE THE FOLLOWING COURSES:

- IT 3240 Construction Materials And Practices (3 credits)
- IT 3250 Print Reading and Project Documentation (3 credits)
- IT 3260 Project Bidding And Estimating (3 credits)
- IT 4259 Construction Management (3 credits)

BLOCK II-SELECT 6 SEMESTER CREDITS FROM THE FOLLOWING

COURSES:
IT 4970, select among ACCT and BUAD non-liberal
Education courses.

SUGGESTED SEMESTER SCHEDULE FOR INDUSTRIAL TECHNOLOGY MAJOR, B.S.

The following is a list of required Industrial Technology Major, B.S. courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Freshman

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1460 Technical Graphics (3 credits)
- Liberal Education Courses

Sophomore

- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- Liberal Education Courses

Junior

- IT 3310 Fluid Power (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- Major Specialization Courses
- Liberal Education Courses

Senior

- IT 4537 Industrial Design (3 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)
- Major Specialization Courses
- Liberal Education Courses

Industrial Technology, B.S. *major* Manufacturing Management Emphasis

Required Credits: 81
Required GPA: 2.25

I REQUIRED TECHNICAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 1460 Technical Graphics (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- IT 3310 Fluid Power (3 credits)
- IT 4537 Industrial Design (3 credits)

II REQUIRED PROFESSIONAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)

III REQUIRED FOUNDATION COURSES

TAKE 6 SEMESTER CREDITS OF MATH AT THE 1100 OR HIGHER LEVEL. STUDENTS ARE ENCOURAGED TO TAKE STATISTICS AND CALCULUS.

TAKE 7 SEMESTER CREDITS FROM AMONG THE PHYSICS, CHEMISTRY, OR PHYSICAL SCIENCE (SPECIFICALLY, SCI 1110 AND SCI 1120) COURSES THAT ARE APPROVED TO FULFILL LIBERAL EDUCATION CATEGORY 3. OTHER CATEGORY 3 COURSES
MAY BE SUBSTITUTED IF APPROVED BY THE CHAIR OF THE DEPARTMENT OF TECHNOLOGICAL STUDIES.

MANUFACTURING MANAGEMENT EMPHASIS

BLOCK I-SELECT 12 SEMESTER CREDITS FROM THE FOLLOWING

COURSES:

- IT 3460 Parametric 3-D Modeling (3 credits)
- IT 3877 Engineering Problem Solving (3 credits)
- IT 3879 Performance Measurement (3 credits)
- IT 4870 Production Management (3 credits)
- IT 4880 Total Quality Management (3 credits)

BLOCK II-SELECT 6 SEMESTER CREDITS FROM THE FOLLOWING

COURSES:
IT 4970, select among ACCT and BUAD non-liberal
Education courses.

SUGGESTED SEMESTER SCHEDULE FOR INDUSTRIAL TECHNOLOGY MAJOR, B.S.

The following is a list of required Industrial Technology Major, B.S. courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Freshman

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1460 Technical Graphics (3 credits)
- Liberal Education Courses

Sophomore

- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- Liberal Education Courses

Junior

- IT 3310 Fluid Power (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)

- IT 3890 Material Handling And Plant Layout (2 credits)
- Major Specialization Courses
- Liberal Education Courses

Senior

- IT 4537 Industrial Design (3 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)
- Major Specialization Courses
- Liberal Education Courses

Industrial Technology, B.S. *major* Manufacturing Technology Emphasis

Required Credits: 81
Required GPA: 2.25

I REQUIRED TECHNICAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 1460 Technical Graphics (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- IT 3310 Fluid Power (3 credits)
- IT 4537 Industrial Design (3 credits)

II REQUIRED PROFESSIONAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)

III REQUIRED FOUNDATION COURSES

TAKE 6 SEMESTER CREDITS OF MATH AT THE 1100 OR HIGHER LEVEL. STUDENTS ARE ENCOURAGED TO TAKE STATISTICS AND CALCULUS.

TAKE 7 SEMESTER CREDITS FROM AMONG THE PHYSICS, CHEMISTRY, OR PHYSICAL SCIENCE (SPECIFICALLY, SCI 1110 AND SCI 1120) COURSES THAT ARE APPROVED TO FULFILL LIBERAL EDUCATION CATEGORY 3. OTHER CATEGORY 3 COURSES
MAY BE SUBSTITUTED IF APPROVED BY THE CHAIR OF THE DEPARTMENT OF TECHNOLOGICAL STUDIES.

MANUFACTURING TECHNOLOGY EMPHASIS

BLOCK I-SELECT 12 SEMESTER CREDITS FROM THE FOLLOWING

COURSES:

- IT 2608 Computer-Controlled Machining (3 credits)
- IT 3217 Materials Science And Metallurgy (3 credits)
- IT 3218 Advanced Machining Processes (3 credits)
- IT 3460 Parametric 3-D Modeling (3 credits)
- IT 3877 Engineering Problem Solving (3 credits)

BLOCK II-SELECT 6 SEMESTER CREDITS FROM THE FOLLOWING

COURSES:
IT 4970; courses applicable toward a minor in Computer Science (non-teaching); Physics (may include lower sequence); Chemistry (not CHEM 2925); or MATH (non-Teaching).

SUGGESTED SEMESTER SCHEDULE FOR INDUSTRIAL TECHNOLOGY MAJOR, B.S.

The following is a list of required Industrial Technology Major, B.S. courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Freshman

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1460 Technical Graphics (3 credits)
- Liberal Education Courses

Sophomore

- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- Liberal Education Courses

Junior

- IT 3310 Fluid Power (3 credits)
- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- Major Specialization Courses
- Liberal Education Courses

Senior

- IT 4537 Industrial Design (3 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)
- Major Specialization Courses
- Liberal Education Courses

Technology Management, B.A.S. *major*

Required Credits: 44
Required GPA: 2.25

I REQUIRED TECHNICAL CORE COURSES

SELECT 26 SEMESTER CREDITS FROM THE FOLLOWING COURSES:

- IT 1100 Orientation To Industrial Technology Programs (1 credit)
- IT 1210 Materials And Processes - Forming (4 credits)
- IT 1220 Materials And Processes - Separating (4 credits)
- IT 1310 Mechanical Power (2 credits)
- IT 1350 Electronic Technology (4 credits)
- IT 1410 Communication Technology (3 credits)
- IT 1460 Technical Graphics (3 credits)
- IT 2250 Construction Technology (2 credits)
- IT 2370 Automation Technology (3 credits)
- IT 3310 Fluid Power (3 credits)
- IT 4537 Industrial Design (3 credits)

II REQUIRED PROFESSIONAL CORE COURSES

COMPLETE THE FOLLOWING COURSES:

- IT 3870 Technical Sales/Presentations (2 credits)
- IT 3880 Human Resource Development (2 credits)
- IT 3890 Material Handling And Plant Layout (2 credits)
- IT 4877 Industrial Maintenance And Safety (3 credits)
- IT 4878 Quality Assurance (3 credits)
- IT 4890 Industrial Organization And Leadership (3 credits)
- IT 4897 Project Management (3 credits)

Courses

All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE
1940, 2940, 3940, 4940 IN-SERVICE COURSE
1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR
1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION
1970, 2970, 3970, 4970 INTERNSHIP
1980, 2980, 3980, 4980 RESEARCH
1990, 2990, 3990, 4990 THESIS

Technology, Art and Design - Design Courses

TADD 2931 Experimental Course (4 credits)
A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

TADD 3251 Watercolor/Aqueous Media (3 credits)
Concentration on the study of composition, color and light, leading to an understanding of watercolor and/or acrylics. Prerequisite: VSAR 2250 or consent of instructor.

TADD 4250 Advanced Painting (1-4 credits)
Emphasis on individual understanding of painting media with special attention to creating a body of work appropriate to the individual painter. Prerequisite: VSAR 3252.

TADD 4808 Special Readings (2 credits)
Reading assignments related to studio research. Prerequisite: Consent of instructor.

TADD 4970 Internship (1-12 credits)
The following description may apply: The Visual Arts Internship program gives students the opportunity to spend a semester working one-on-one with an artist or for a major cultural institution. Each field experience is individually designed to meet the needs of the student.

All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE
1940, 2940, 3940, 4940 IN-SERVICE COURSE
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