

## Technology

### TE 1020 - Technology Computer Applications

Introductory course intended to develop knowledge of computer modeling techniques such as solid modeling, spreadsheet, word processing, presentation, and project time line software utilized throughout the technology curriculum.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-2-2)

**Semesters Offered:** Fall, Summer

### TE 2000 - Directed Study in Technology

Students undertake a directed study in an approved technology topic under the guidance of a School of Technology faculty member. The course of study will be academic in nature and is decided upon between the student and the faculty member.

**Credits:** variable to 3.0; Repeatable to a Max of 6

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor and department required; Must be enrolled in one of the following College(s): School of Technology; Must be enrolled in one of the following Class(es): Freshman, Sophomore

### TE 3600 - Quality Techniques

This course offers an in depth examination of the key elements of quality systems used by organizations. Topics will include cause and effect analysis, loss prevention, process control, vendor management, advanced quality planning and policy analysis.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-2-1)

**Semesters Offered:** Fall

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

**Pre-Requisite(s):** MA 2720(C)

### TE 3956 - Industrial Safety Management

Occupational safety and health standards and codes. Hazard recognition, accident costs, accident prevention, ethics and administration.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

### TE 4200 - Leadership in Complex Organizations

This senior level course explores the traditional and emerging models of leadership as they exist in contemporary organizations. Topics will include organizational theory, critical theory, leadership development, and organizational learning.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

### TE 4580 - Facilities Planning, Layout and Process Flow

This course examines the methods used to collect and analyze the necessary data in designing an efficient manufacturing facility. Attention will be given to site and equipment selection, layout and flow analysis.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-2-2)

**Semesters Offered:** Fall

**Restrictions:** Must be enrolled in one of the following Class(es): Senior

### TE 4590 - Production Planning and Control

This course studies the modern methods for the systematic planning and control of operations necessary to produce a product or service.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Senior

### TE 4996 - Special Topics in Technology

Selected additional topics of interest in Technology based on student and faculty demand and interest. May be a tutorial, seminar, workshop, project, or class study.

**Credits:** variable to 3.0; Repeatable to a Max of 6

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor required; Must be enrolled in one of the following College(s): School of Technology; Must be enrolled in one of the following Class(es): Senior

### TE 4997 - Independent Study in Technology

Independent study of an approved topic under the guidance of a School of Technology faculty member. May be either an academic, design, or research problem/project.

**Credits:** variable to 3.0; Repeatable to a Max of 6

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor required; Must be enrolled in one of the following College(s): School of Technology; Must be enrolled in one of the following Class(es): Senior

### TE 4998 - Undergraduate Research in Technology

An undergraduate research experience in Technology. Under the guidance of a School of Technology faculty member, students work on a selected/approved research problem or work directly with faculty on active research projects/grants. May require more than one semester to complete.

**Credits:** variable to 6.0; Repeatable to a Max of 6

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor required; Must be enrolled in one of the following College(s): School of Technology; Must be enrolled in one of the following Class(es): Senior

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## University Wide

### UN 1000 - Frameworks for Success

An introduction to University life, exploring ways to become a more effective student focusing on personal and professional habits necessary for success. Topics include academic skill development, time management, and university resources.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-2)

**Semesters Offered:** Fall, Summer

### UN 1001 - Perspectives on Inquiry

Writing-intensive course which engages students in college level inquiry. Students develop fundamental intellectual habits, understand how to integrate various perspectives on knowledge, and begin to learn how to meet the changing needs of a global, technological, diverse, and environmentally sensitive society.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Freshman

### UN 1002 - World Cultures

Examines diversity and change around the globe from perspectives of social sciences, humanities, and arts; explores human experience from prehistory to present. Classroom lectures accompanied by films, live performances, and guest speakers. One complete year of a single foreign language plus World Cultures (UN1003, 1-credit-activities) substitutes for World Cultures.

**Credits:** 4.0

**Lec-Rec-Lab:** (3-0-3)

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Freshman

### UN 1003 - World Cultures Activities

Activities portion of World Cultures. Limited to enrollment by students choosing the modern language option of one full year of a single foreign language to fulfill their World Cultures requirement.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-2)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Freshman

### UN 1010 - Creating Your Success

Introduction to strategies for creating academic, professional and personal success. Emphasis is on determining individual priorities, improving self-management and developing critical thinking skills. Guided journal writing will be used to explore these strategies.

**Credits:** 1.0; Repeatable to a Max of 3; Graded Pass/Fail Only

**Lec-Rec-Lab:** (0-0-2)

**Semesters Offered:** Fall, Spring, Summer

### UN 1100 - Foundations of Global Leadership

Seminar course designed for participants in the Pavlis program. Offers an introduction to theories of communication relevant to leadership in a global context and examines the relationships among globalization, diversity, culture, communication, and the practices of effective leadership.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Fall

**Restrictions:** Permission of instructor required

### UN 1200 - Foundations of Environmental Leadership

Seminar course designed for students in the Pavlis program. Builds upon theories of communication covered in UN1100 with particular emphasis on their application to global environmental issues. Examines the role of environmental ethics and sustainability in effective leadership.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Spring

**Pre-Requisite(s):** UN 1100

### UN 1955H - Honors Institute Contract

**Credits:** 0.0; Graded Pass/Fail Only

**Semesters Offered:** On Demand

### UN 2001 - Revisions: Oral, Written, and Visual Communication

Oral, Written, and Visual Communication. Writing-intensive course which builds on students' previous courses by providing advanced, direct instruction in communication. Students look closely at the communication practices of civic groups and apply what they learn to their own spoken, written, and visual work. Class projects ask students to fit the communications they make to interesting, sometimes difficult, situations and audiences.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Freshman, Sophomore

**Pre-Requisite(s):** UN 1001 and (UN 1002 or UN 1003)

### UN 2002 - Institutions

From families to governments, to markets, to our interactions with the natural environment, institutions organize collective human action. Introduces students to the nature and role of institutions in shaping today's world. Specific topics will vary by section, but all sections address a set of core questions and concepts.

**Credits:** 3.0

**Lec-Rec-Lab:** (3-0-0)

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Must be enrolled in one of the following Class(es):

Sophomore

### UN 2100 - Foundations of Technological Leadership

Seminar course designed for students in the Pavlis program. Builds upon communication and leadership topics covered in UN1200 with an emphasis on technology in a globalized world. Also theorizes and develops skills essential for effective innovation, entrepreneurship, and creativity.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Fall

**Pre-Requisite(s):** UN 1200

### UN 2525 - Career Development Foundations

Students will learn the process of career development and planning, which includes self-assessment, decision-making, job search strategies, and awareness of workplace issues.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-1-0)

**Semesters Offered:** Fall, Spring

**Restrictions:** May not be enrolled in one of the following Class(es):

Freshman

### UN 2600 - Fundamentals of Nanoscale Science and Engineering

Team-taught introduction to the fundamentals of nanotechnology, emphasizing the interdisciplinary nature of this field. Modern instrumentation, key scientific foundations, and current and potential applications will be discussed. Real and potential societal implications of nanotechnology will be explored.

**Credits:** 2.0

**Lec-Rec-Lab:** (1-1-0)

**Semesters Offered:** Spring - Offered alternate years beginning with the 2007-2008 academic year

### UN 2990 - Special Topics - Interdiscip.

The study of interdisciplinary special topics as specified by section title.

**Credits:** variable to 6.0; Repeatable to a Max of 97

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor required

### UN 2995H - Honors Institute Contract

**Credits:** 0.0; Graded Pass/Fail Only

**Semesters Offered:** On Demand

### UN 3002 - Undergraduate Cooperative Education Laboratory

Credits may count as free or technical electives based on student's academic department. Requires 2.20 GPA or better, registration with the Office of Cooperative Education, and acceptability by a recognized employer. Transfer students must have completed at least one full-time semester on the MTU campus.

**Credits:** variable to 2.0; May be repeated

**Semesters Offered:** Fall, Spring, Summer

**Restrictions:** Permission of instructor and department required; May not be enrolled in one of the following Level(s): Graduate; Must be enrolled in one of the following Class(es): Sophomore, Junior, Senior

### UN 3100 - Foundations of Ethical Leadership

Seminar course designed for participants in the Pavlis program. Builds

upon topics covered in UN2100 with an emphasis on the principles of ethical leadership. Covers topics of ethics in communication, technology, the environment, and economics in today's interconnected, globalizing world.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Fall

**Pre-Requisite(s):** UN 2100

#### **UN 3200 - Global Technological Leadership**

This course, designed for students in the Pavlis program, covers topics of leadership including personality traits, interpersonal skills, leadership styles, teamwork, situational leadership, and decision making. Offers practical experience in project development, communication, and leadership development.

**Credits:** 3.0

**Lec-Rec-Lab:** (0-3-0)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

**Pre-Requisite(s):** UN 3100

#### **UN 3404 - Cultural Awareness**

This course, designed for students in the Pavlis program, allows students to explore the culture of their international experience. Students will gain insight into working with and learning from different cultures to see the world and their leadership roles in new ways.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-1-1)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

**Co-Requisite(s):** UN 3405, UN 3406

**Pre-Requisite(s):** UN 3200

#### **UN 3405 - Language Fundamentals**

This course, designed for students in the Pavlis program, provides an opportunity for students to explore the basic and essential elements of language spoken in the host country using online resources and native speakers to facilitate leadership development abroad.

**Credits:** 2.0

**Lec-Rec-Lab:** (0-0-6)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

**Co-Requisite(s):** UN 3404, UN 3406

**Pre-Requisite(s):** UN 3200

#### **UN 3406 - Language of Business, Technology, and the Environment**

This course, designed for students in the Pavlis program, will allow students to explore 1) business and management culture, 2) engineering & technology tools, tactics, and processes associated with design and development of new products and technological systems, and 3) topics of environmental stewardship associated with the location of their international experience.

**Credits:** 2.0

**Lec-Rec-Lab:** (1-0-1)

**Semesters Offered:** Summer

**Restrictions:** Must be enrolled in one of the following Class(es): Junior, Senior

**Co-Requisite(s):** UN 3404, UN 3405

**Pre-Requisite(s):** UN 3200

#### **UN 3995H - Honors Institute Contract**

**Credits:** 0.0; Graded Pass/Fail Only

**Semesters Offered:** On Demand

#### **UN 4000 - Remote Sensing Seminar**

A seminal series that covers topical issues in remote sensing, ecosystem research, and global change. Required for all students with a minor in remote sensing.

**Credits:** 1.0; Repeatable to a Max of 2

**Lec-Rec-Lab:** (0-1-0)

**Semesters Offered:** Fall, Spring

**Restrictions:** May not be enrolled in one of the following Class(es): Freshman, Sophomore

#### **UN 4050 - Global Leadership Practicum**

Students in the Pavlis program will spend time abroad participating in a variety of leadership experiences including at least one major leadership project. Upon returning, students will spend two weeks on campus writing reports and hosting an on-campus leadership institute.

**Credits:** 7.0

**Lec-Rec-Lab:** (0-0-12)

**Semesters Offered:** Summer

**Restrictions:** Permission of department required; Must be enrolled in one of the following Class(es): Junior, Senior

**Pre-Requisite(s):** UN 3404 and UN 3405 and UN 3406

#### **UN 4100 - Leadership Capstone Project I**

This course, designed for students in the Pavlis program, is the first in a two part leadership capstone experience. Students engage in discussions

and make oral presentations, outline a senior project report, mentor other students and apply their leadership skills by taking on leadership roles.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Fall

**Restrictions:** Must be enrolled in one of the following Class(es): Senior

**Pre-Requisite(s):** UN 4050

**UN 4200 - Leadership Capstone Project II**

This course, designed for students in the Pavlis program, is the second in a two part leadership capstone experience. Students engage in discussions and make oral presentations, write a senior project report, mentor other students and apply their leadership skills by taking on leadership roles.

**Credits:** 1.0

**Lec-Rec-Lab:** (0-0-3)

**Semesters Offered:** Spring

**Restrictions:** Must be enrolled in one of the following Class(es): Senior

**Pre-Requisite(s):** UN 4100

**UN 4990 - Special Topics - Interdisciplinary**

Study of interdisciplinary special topics as specified by section title.

**Credits:** variable to 6.0; May be repeated

**Semesters Offered:** On Demand

**Restrictions:** Permission of instructor required

**UN 4995H - Honors Institute Contract**

**Credits:** 0.0; Graded Pass/Fail Only

**Semesters Offered:** On Demand

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