

# Technology, Society, Environment Studies (Minor)

This section presents the requirements for programs in:

- Minor in Technology, Society, Environment Studies (TSE)

## Program Requirements

### Minor in Technology, Society, Environment Studies (TSE) (4.0 credits)

This minor is available to all undergraduate degree students.

#### Requirements

<b>1. 1.0 credit in:</b>	<b>1.0</b>
ENSC 2001 [0.5] Earth Resources and Natural Hazards: Environmental Impacts	
ISCI 2002 [0.5] Human Impacts on the Environment	
<b>2. 1.0 credit in:</b>	<b>1.0</b>
TSES 3001 [0.5] Technology-Society Interactions	
TSES 3002 [0.5] Energy and Sustainability	
<b>3. 1.0 credit from:</b>	<b>1.0</b>
ISCI 1001 [0.5] Introduction to the Environment & ISCI 2000 [0.5] Natural Laws	
TSES 2305 [1.0] Ancient Science and Technology	
CLCV 2305 [1.0] Ancient Science and Technology	
<b>4. 1.0 credit from:</b>	<b>1.0</b>
TSES 4001 [0.5] Technology and Society: Risk	
TSES 4002 [0.5] Technology and Society: Forecasting	
TSES 4003 [0.5] Technology and Society: Innovation	
TSES 4005 [0.5] Information Technology and Society	
TSES 4006 [0.5] Technology and Society: Work	
TSES 4007 [0.5] Product Life Cycle Analysis	
TSES 4008 [0.5] Environmentally Harmonious Lifestyles	
TSES 4009 [0.5] Special Topics	
TSES 4010 [0.5] Special Topics	
TSES 4011 [0.5] Technology and Society: Development	
TSES 4012 [0.5] Science and Fiction: Creating Tomorrow	
TSES 4014 [0.5] Technology-Society: Time	
5. The remaining requirements of the major discipline(s) and degree must be satisfied.	
<b>Total Credits</b>	<b>4.0</b>

**Note:** This Minor is designed for all degree students. There are no requirements for OAC Science credits or University level credits in Natural Sciences. Students with one or more OAC and/or university credits in science can replace ISCI 1001 and ISCI 2000 with TSES 2305, and/or additional half-credit 4000-level TSE courses. Students who have taken courses equivalent to ENSC 2001 and/or ISCI 2002 can also replace all or part of requirement

1 with 4000-level TSE courses. Any substitution requires permission of the Chair of TSE.

## Regulations

In addition to the requirements listed here, students must satisfy:

1. the University regulations including the process of Academic Performance Evaluation (see the Academic Regulations of the University section of this Calendar).

## Technology, Society, Environment (TSES) Courses

### TSES 2006 [0.5 credit]

#### Ecology and Culture

Cultural adaptations to the environment are set within globalization processes. New symbolic, historical and political ecologies arise out of the hubris of classical models. The advocacy role of applied ecological anthropology and the consequences of Western cultures' adaptive capacities will be examined.

Prerequisite(s): second year standing or equivalent. Lectures three hours a week.

### TSES 2305 [1.0 credit]

#### Ancient Science and Technology

Development of science and technology in the ancient world and their practical application. The craftsman and artisan in society; the attitude of intellectuals to science and manual labour. Effects of the institution of slavery. Suitable for students with no previous knowledge of Greece or Rome.

Also listed as CLCV 2305.

Prerequisite(s): second-year standing or equivalent. Lectures two hours a week.

### TSES 3001 [0.5 credit]

#### Technology-Society Interactions

Ethical issues in introducing technology; historical review of technology and human development; effects on society of medical and communications technologies; automation and its effects on society, especially work; impact of technology on international affairs, especially through multinational enterprises. Guest lectures.

Includes: Experiential Learning Activity  
Precludes additional credit for TSES 3000 and TSES 3500.

Prerequisite(s): at least second-year standing. Lectures and workshops three hours per week.

### TSES 3002 [0.5 credit]

#### Energy and Sustainability

History of energy use by humans; utilization of renewable energy sources; energy and agriculture; energy and mineral resources; options for electricity generation; nuclear energy; risks of accidents in large systems, e.g. nuclear plants, hydroelectric dams. Guest lectures.

Includes: Experiential Learning Activity  
Precludes additional credit for TSES 3000 and TSES 3500.

Prerequisite(s): at least second-year standing. Lectures and workshops three hours per week.

**TSES 3500 [0.5 credit]****Interactions in Industrial Society**

Ethical issues involving technology; effects on society of automation, medical and communications technologies; technology and international affairs; energy use by humans; renewable energy sources; energy in agriculture and mineral extraction; electricity generation; nuclear energy; accidents in large systems, e.g. nuclear plants and hydroelectric dams.

Precludes additional credit for TSES 3001, TSES 3002 and TSES 3000.

Prerequisite(s): at least second-year standing.

Lectures three hours per week for both terms.

**TSES 4001 [0.5 credit]****Technology and Society: Risk**

Examines the complex practice of evaluating technology's impact on society and the environment; risk analysis; cost-benefit analysis; technology regulation; retrospective project assessment; necessary aspects of assessment and assessment examples. Guest lecturers.

Includes: Experiential Learning Activity

Prerequisite(s): third-year standing or equivalent.

Lectures and workshops three hours a week.

**TSES 4002 [0.5 credit]****Technology and Society: Forecasting**

Methods used for forecasting technological and social change; technological and social change portrayed in literature; science fiction factors involved in such change. Guest lecturers.

Includes: Experiential Learning Activity

Prerequisite(s): third-year standing or equivalent.

Lectures and workshops three hours a week.

**TSES 4003 [0.5 credit]****Technology and Society: Innovation**

Technological and social innovation, especially in Canada: historical examples; the relation of innovation to economic development; analysis of the steps involved; effect on employment; impediments and incentives. Guest lecturers.

Prerequisite(s): third-year standing or equivalent.

Lectures and seminars three hours a week.

**TSES 4005 [0.5 credit]****Information Technology and Society**

Investigation of the human and social impacts of electronic information and communication on our working, educational, and personal lives from various disciplinary perspectives; problem issues and competing values in the creation, manipulation, dissemination, and control of information are identified; resolution initiatives encouraged. Guest lecturers.

Prerequisite(s): third-year standing or equivalent.

Lectures and seminars three hours a week.

**TSES 4006 [0.5 credit]****Technology and Society: Work**

Explores the relationship between technology, employment and the individual; work organizations; employment restructuring; rural/urban split; the impact of information technologies; demographic impacts and globalization; Canadian issues and public policy explored. Guest lecturers.

Includes: Experiential Learning Activity

Prerequisite(s): third-year standing or equivalent.

Lectures and workshops three hours a week.

**TSES 4007 [0.5 credit]****Product Life Cycle Analysis**

Life cycle analysis of products and processes, from resource extraction through design and use to waste management or recycling; social and environmental implications of product design and use; how we value material objects and the environment; consumerism; evolution of design. Guest lectures.

Includes: Experiential Learning Activity

Prerequisite(s): third-year standing or equivalent.

Lectures and workshops three hours a week.

**TSES 4008 [0.5 credit]****Environmentally Harmonious Lifestyles**

Brief history of humans as part of the ecosystem; religious and ethical views; current degree of ecosystem disturbance by industrial society; innovations in products and services furthering the sustainability of the ecosystem, emphasis on the Canadian context. Guest lecturers and a major project.

Prerequisite(s): third-year standing or equivalent.

Lectures and seminars three hours a week.

**TSES 4009 [0.5 credit]****Special Topics**

Reading course for students who wish to investigate a particular topic relevant to TSES.

Prerequisite(s): third-year standing or equivalent and permission of the Chair of TSE.

**TSES 4010 [0.5 credit]****Special Topics**

Specific topics of current interest. Topics may vary from year to year.

Prerequisite(s): third-year standing or equivalent.

Lectures three hours a week.

**TSES 4011 [0.5 credit]****Technology and Society: Development**

Created in collaboration with Engineers Without Borders Carleton, the course explores appropriate ways of meeting technological needs of communities. Uses Canadian and African case studies to examine how capacity building has a greater impact than simple delivery of technological goods.

Prerequisite(s): third-year standing or equivalent.

Lectures three hours a week.

**TSES 4012 [0.5 credit]****Science and Fiction: Creating Tomorrow**

Scenarios are used to speculate about the planned future. Science fiction and speculative fiction project ideas about imagined futures. Using readings from scenarios, speculative fiction and science fiction the course explores the mutual shaping of fiction, science and technology.

Prerequisite(s): third-year standing or equivalent.

**TSES 4014 [0.5 credit]****Technology-Society: Time**

Time is a universal human experience, but it presents some profound mysteries. It governs our behaviour on personal, societal and cultural levels. This course will bring together experts from physics, sociology, philosophy, biology, literature and psychology to illuminate our understanding.

Prerequisite(s): third-year standing or equivalent.

Lectures three hours a week.