

# Technology Innovation Management

This section presents the requirements for programs in:

- **M.A.Sc. Technology Innovation Management**
- **M.Ent. Technology Innovation Management**
- **M. Eng. Technology Innovation Management**

## Program Requirements

Subject to the approval of the admissions committee, students in the master's program may choose to complete the degree by successfully completing either a thesis or a project.

### M.A.Sc. Technology Innovation Management (5.5 credits)

#### Requirements- Master's Degree by Thesis (5.5 credits)

<b>1. 1.5 credits in compulsory courses including:</b>	<b>1.5</b>
TIMG 5001 [0.5] Principles of Technology Innovation Management	
TIMG 5002 [0.5] Technology Entrepreneurship	
TIMG 5003 [0.5] Issues in Technology Innovation Management	
<b>2. 2.0 credits in approved restricted elective courses</b>	<b>2.0</b>
<b>3. 2.0 credits in thesis</b>	<b>2.0</b>
<b>Total Credits</b>	<b>5.5</b>

#### Restricted Elective Courses

Students in the master's program must complete 1.0 credit in the field of technology innovation management and 1.0 credit in engineering, business or science. Courses in the field of technology innovation management begin with the prefix TIMG.

#### Non-Restricted Elective Courses

All students in the project option of the master's program are required to complete 1.0 credit from courses offered in engineering, business, or science.

### M.Ent. Technology Innovation Management (5.5 credits)

Students in the Master of Entrepreneurship option are required to complete a total of 5.5 credits of which at least 5.0 must be at the 5000-level or above, as follows:

#### Requirements - by Project (5.5 credits)

<b>1. 2.5 credits in:</b>	<b>2.5</b>
TIMG 5001 [0.5] Principles of Technology Innovation Management	
TIMG 5002 [0.5] Technology Entrepreneurship	
TIMG 5003 [0.5] Issues in Technology Innovation Management	
TIMG 5005 [0.5] Customer Value Creation in Technology Firms	
TIMG 5201 [0.5] Technology and Wealth	
<b>2. 2.0 credits in approved restricted electives courses:</b>	<b>2.0</b>
1.0 credit in TIMG, and	
1.0 credit in engineering, business or science.	

<b>3. 1.0 credit in a graduate project</b>	<b>1.0</b>
<b>Total Credits</b>	<b>5.5</b>

### M. Eng. Technology Innovation Management (5.5 credits)

Students in the Master of Engineering option are required to complete a total of 5.5 credits of which at least 5.0 must be at the 5000-level or above, as follows:

#### Requirements - Master's Degree by Project (5.5 credits)

<b>1. 1.5 credits in compulsory courses including:</b>	<b>1.5</b>
TIMG 5001 [0.5] Principles of Technology Innovation Management	
TIMG 5002 [0.5] Technology Entrepreneurship	
TIMG 5003 [0.5] Issues in Technology Innovation Management	
<b>2. 2.0 credits in approved restricted elective courses</b>	<b>2.0</b>
<b>3. 1.0 credit in approved non-restricted electives</b>	<b>1.0</b>
<b>4. 1.0 credit in a graduate project</b>	<b>1.0</b>
<b>Total Credits</b>	<b>5.5</b>

#### Restricted Elective Courses

Students in the master's program must complete 1.0 credit in the field of technology innovation management and 1.0 credit in engineering, business or science. Courses in the field of technology innovation management begin with the prefix TIMG.

#### Non-Restricted Elective Courses

All students in the project option of the master's program are required to complete 1.0 credit from courses offered in engineering, business, or science.

#### Admission

The normal requirement for admission to the master's program is a bachelor's degree in engineering, business, or science, with at least high honours standing.

Candidates are normally required to have two years of technical experience prior to admission.

Candidates applying for admission with degrees in other areas will be considered by the admissions committee. The committee is responsible for establishing criteria for degree equivalencies.

#### Regulations

See the General Regulations section of this Calendar.

### Technology Innovation Management (TIMG) Courses

#### TIMG 5001 [0.5 credit]

##### Principles of Technology Innovation Management

Develops a common level of knowledge among students on topics in product and service development, technology entrepreneurship, and commercialization. These topics build on the literature in the fields of project management, leadership, industrial marketing, managerial economics and organizational behaviour.

Precludes additional credit for TTMG 5001 (no longer offered).

**TIMG 5002 [0.5 credit]****Technology Entrepreneurship**

Key theories and models of technology entrepreneurship. Topics include the nature of technology products, collaborative experimentation and production of new products, assets, and their attributes, and the firm's asset ownership rights.

Precludes additional credit for TTMG 5002 (no longer offered).

**TIMG 5003 [0.5 credit]****Issues in Technology Innovation Management**

Key readings relevant to technology innovation management. Topics include the introduction of new products to the global market, technology sourcing, intellectual property rights, industry trends, technology and ethics, new business opportunities and product identification, industry characteristics, regulation, international competition, ecosystems, economic development, and open source.

Precludes additional credit for TTMG 5003 (no longer offered).

**TIMG 5004 [0.5 credit]****Research Methods in Technology Innovation Management**

Prepares students to undertake research in technology innovation management. Students learn to define interesting research problems and hypotheses relevant to technology innovation management, and learn the different research approaches used in the field of technology innovation management.

Precludes additional credit for TTMG 5004 (no longer offered).

Prerequisite(s): TIMG 5001 and one of TIMG 5002 or TIMG 5003.

**TIMG 5005 [0.5 credit]****Customer Value Creation in Technology Firms**

Topics include: architecture, product/service management; technology and complementary assets; latent needs; co-design and user innovation; life-cycle management; pricing; alignment of technology and business strategy; user experience; customer retention.

Precludes additional credit for TTMG 5005 (no longer offered).

Prerequisite(s): TIMG 5001 and TIMG 5002.

**TIMG 5006 [0.5 credit]****Management of Software Engineering Projects**

Models for the development of software. Software project management tools. Quality control. Risk assessment and management. Examples are drawn from the development of new technology products.

Precludes additional credit for TTMG 5006 (no longer offered).

Prerequisite(s): TIMG 5001 or TTMG 5001 and TIMG 5002 or TTMG 5002.

**TIMG 5101 [0.5 credit]****Integrated Product Development**

The new product introduction process and time-based competition, basic concepts of integrated product development, parallelism and concurrency of development activities, flexibility and agility, the voice of the customer, cross-functional teams, organizing for innovation, collaboration across firm boundaries, manufacturing and design.

Prerequisite(s): TIMG 5001 and TIMG 5002.

**TIMG 5103 [0.5 credit]****Advanced Topics in Technology Innovation Management**

In-depth exploration of an advanced topic in the field of technology innovation management. A different topic is covered each semester and more than one section, with different topics, may be offered in the same semester.

Prerequisite(s): one of TIMG 5004, TIMG 5005, or TIMG 5101.

**TIMG 5104 [0.5 credit]****Directed Studies in Technology Innovation Management**

The student explores, through extensive literature surveys, specific topics in the areas of technology innovation management. The objective is to enable study on a specific topic to acquire a suitable background to initiate and complete thesis work.

Precludes additional credit for TTMG 5104 (no longer offered). any other directed studies.

**TIMG 5105 [0.5 credit]****Designing Innovation Communities**

This course helps entrepreneurs and product managers understand the role of communities in innovation (eg. peer production and crowdsourcing). It provides them with tools for designing communities, and guidelines for selecting the technology for supporting a community.

**TIMG 5106 [0.5 credit]****Open Source Business**

The management of open source businesses. Topics may include company participation in open source projects, capturing value from open source projects, creating and managing open source ecosystems, open-source development, role of architecture in open source projects.

**TIMG 5201 [0.5 credit]****Technology and Wealth**

Tools, models, approaches, theories and frameworks used to deploy technology to create and appropriate wealth.

**TIMG 5901 [1.0 credit]****M.Eng. Project**

Precludes additional credit for TTMG 5901 (no longer offered).

**TIMG 5905 [1.0 credit]****M.Ent. Project**

**TIMG 5909 [2.0 credits]**

**M.A.Sc. Thesis**

Precludes additional credit for TTMG 5909 (no longer offered).

**Summer session:** some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current session and to determine the term of offering, consult the class schedule at [central.carleton.ca](http://central.carleton.ca)