Sustainable Energy

This section presents the requirements for programs in:

- M.A. Sustainable Energy
- M.A. Sustainable Energy with Collaborative Specialization in Climate Change
- M.A.Sc. Sustainable Energy
- M.Eng. Sustainable Energy
- M.Eng. Sustainable Energy with Collaborative Specialization in Climate Change

Program Requirements

M.A. Sustainable Energy (5.0 credits)

M.A. Sustainable Energy - coursework pathway 1. 1.5 credits in: 1.5 SERG 5002 [0.5] Sustainable Energy Engineering for Policy Students SERG 5003 [0.5] Energy Evaluation and Assessment Tools SERG 5005 [0.5] Applied Interdisciplinary Project 2. 0.0 credit in: 0.0 SERG 5800 [0.0] Sustainable Energy Seminar 0.5 3. 0.5 credit in: PADM 5121 [0.5] Policy Analysis: The Practical Art of Change 0.5 4. 0.5 credit in: PADM 5510 [0.5] **Energy Economics** 5. 0.5 credit in: 0.5 PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.B) litics and Policy of Energy in Canada 6. 2.0 credits from Sustainable Energy Policy courses 2.0 listed below or other courses as approved by the MA supervisor **Total Credits** 5.0 **Requirements - Research essay pathway:** 1. 1.5 credits in: 1.5 SERG 5002 [0.5] Sustainable Energy Engineering for Policy Students SERG 5003 [0.5] Energy Evaluation and Assessment Tools SERG 5005 [0.5] Applied Interdisciplinary Project 2. 0.0 credit in: 0.0 SERG 5800 [0.0] Sustainable Energy Seminar 3. 0.5 credit in: 0.5 PADM 5121 [0.5] Policy Analysis: The Practical Art of Change 0.5 4. 0.5 credit in: PADM 5510 [0.5] **Energy Economics** 5. 0.5 credit in: 0.5 PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.8) litics and Policy of Energy in Canada 6. 1.0 credits from Sustainable Energy Policy courses 10 listed below or other courses as approved by the MA supervisor 7. 1.0 credit in: 1.0

PADM 5908 [1.0] Research Essay **Total Credits** 5.0 **Requirements - Thesis pathway:** 1. 1.5 credits in: 1.5 SERG 5002 [0.5] Sustainable Energy Engineering for Policy Students SERG 5003 [0.5] Energy Evaluation and Assessment Tools SERG 5005 [0.5] Applied Interdisciplinary Project 2. 0.0 credit in: 0.0 SERG 5800 [0.0] Sustainable Energy Seminar 3. 0.5 credit in: 0.5 PADM 5121 [0.5] Policy Analysis: The Practical Art of Change 4. 0.5 credit in: 0.5 PADM 5510 [0.5] **Energy Economics** 5. 0.5 credit in: 0.5 Sustainable Energy Policy PADM 5515 [0.5] or PADM 5615 [0.B) litics and Policy of Energy in Canada 6. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis **Total Credits** 5.0

Notes:

 Courses must be appropriate to the student's qualifications and selected with the approval of the student's program supervisor.

M.A. Sustainable Energy with Collaborative Specialization in Climate Change (6.0 credits)

Requirements - Coursework pathway:

credit in:		1.0
A 5000 [1.0]	Climate Collaboration	
credit in:		
A 5800 [0.0]	Climate Seminar Series	
credits in:		1.5
G 5002 [0.5]	Sustainable Energy Engineering for Policy Students	
G 5003 [0.5]	Energy Evaluation and Assessment Tools	
G 5005 [0.5]	Applied Interdisciplinary Project	
credit in:		0.0
G 5800 [0.0]	Sustainable Energy Seminar	
credit in:		0.5
M 5121 [0.5]	Policy Analysis: The Practical Art of Change	
credit in:		0.5
M 5510 [0.5]	Energy Economics	
credit in:		0.5
M 5515 [0.5]	Sustainable Energy Policy	
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		2.0
redits		6.0
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PADM 5121 [0.5] Policy Analysis: The Practical Art of Change 6. 0.5 credit in: 0.5 PADM 5510 [0.5] Energy Economics 7. 0.5 credit in: 0.5 PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.B)[bilitics and Policy of Energy in Canada 8. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	Re 1. 2. 3.	Equirements - Thes 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in:	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project	1.0
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7. 0.5 credit in: 0.5 PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.B) plitics and Policy of Energy in Canada 8. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	Re 1. 2. 3.	equirements - Thes 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in:	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of	1.0 1.5 0.0
PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.B) plitics and Policy of Energy in Canada 8. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	R(1. 2. 3. 4. 5.	Equirements - These 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: SERG 5800 [0.0] 0.5 credit in:	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of	1.0 1.5 0.0 0.5
PADM 5515 [0.5] Sustainable Energy Policy or PADM 5615 [0.B) plitics and Policy of Energy in Canada 8. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	R(1. 2. 3. 4. 5.	equirements - Thes 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in:	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change	1.0 1.5 0.0 0.5
8. 2.0 credits in: 2.0 SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	Re 1. 2. 3. 4. 5.	equirements - Thes 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: PADM 5121 [0.5] 0.5 credit in:	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change	1.0 1.5 0.0 0.5 0.5
SERG 5909 [2.0] MA Sustainable Energy Thesis (in the specialization)	Re 1. 2. 3. 4. 5.	Equirements - Thes 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: PADM 5121 [0.5] 0.5 credit in: PADM 5510 [0.5] 0.5 credit in: PADM 5510 [0.5]	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change Energy Economics	1.0 1.5 0.0 0.5 0.5
the specialization)	Re 1. 2. 3. 4. 5. 6. 7.	Acquirements - These 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: PADM 5121 [0.5] 0.5 credit in: PADM 5510 [0.5] 0.5 credit in: PADM 5515 [0.5] or PADM 5615 [0.5]	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change Energy Economics	1.0 1.5 0.0 0.5 0.5 0.5
Total Credits 6.0	Re 1. 2. 3. 4. 5. 6. 7.	Acquirements - These 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: PADM 5510 [0.5] 0.5 credit in: PADM 5515 [0.5] or PADM 5615 [0.5] or PADM 5615 [0.5]	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change Energy Economics Sustainable Energy Policy DB/Ditics and Policy of Energy in Canad	1.0 1.5 0.0 0.5 0.5 0.5
	Re 1. 2. 3. 4. 5. 6. 7.	Applierements - These 1.0 credit in: CLIM 5000 [1.0] 0.0 credit in: CLIM 5800 [0.0] 1.5 credits in: SERG 5002 [0.5] SERG 5003 [0.5] SERG 5005 [0.5] 0.0 credit in: SERG 5800 [0.0] 0.5 credit in: PADM 5510 [0.5] 0.5 credit in: PADM 5515 [0.5] or PADM 5615 [0.5] or PADM 5615 [0.5]	Climate Collaboration Climate Seminar Series Sustainable Energy Engineering for Policy Students Energy Evaluation and Assessment Tools Applied Interdisciplinary Project Sustainable Energy Seminar Policy Analysis: The Practical Art of Change Energy Economics Sustainable Energy Policy DBplitics and Policy of Energy in Canador MA Sustainable Energy Thesis (in	1.0 1.5 0.0 0.5 0.5 0.5

Notes:

1. Courses must be appropriate to the student's qualifications and selected with the approval of the student's program supervisor.

M.A.Sc. Sustainable Energy (5.0 credits)

M.A.Sc. Sustainable	Energy (5.0 credits)	
1. 1.0 credit in:		1.0
SERG 5001 [0.5]	Sustainable Energy Policy for Engineers	
SERG 5003 [0.5]	Energy Evaluation and Assessment Tools	
2. 0.0 credit in:		0.0
SERG 5800 [0.0]	Sustainable Energy Seminar	
3. 1.5 credits from the Mechanical Energy Conversion courses (below), or from the Efficient Electrical Energy Systems courses (below), or from the Sustainable Energy Policy courses. A maximum of 0.5 credits in Sustainable Energy Policy courses will be allowed.		
4. 2.5 credits in M.A		2.5
MECH 5909/ SYSC 5909/ ELEC 5909 [2.5]	M.A.Sc. Thesis	
Total Credits		5.0
M Eng. Sustaina	ble Energy (5.0 credits)	
•	ble Ellergy (5.0 credits)	
Requirements:		1 5
1. 1.5 credits in:	Sustainable Energy Deliay for	1.5
SERG 5001 [0.5]	Sustainable Energy Policy for Engineers	
SERG 5003 [0.5]	Energy Evaluation and Assessment Tools	
SERG 5005 [0.5]	Applied Interdisciplinary Project	
2. 0.0 credit in:		0.0
SERG 5800 [0.0]	Sustainable Energy Seminar	4 5
3. 1.5 credits in:		1.5
Mechanical Engin	-	
1.5 credits in Mechanical Energy Conversion courses (listed below), or Sustainable Energy Policy courses.A maximum of 0.5 credits in Sustainable Energy Policy courses will be allowed.		
or		
Electrical Enginee	•	
(listed below) or Su	nt Electrical Energy Systems courses Istainable Energy Policy courses. A edits in Sustainable Energy Policy wed.	
4. 2.0 credits in:		2.0
Mechanical Engineering focus:		
Graduate-level ME	CH courses	
or		
Electrical Engineering focus:		
Graduate level ELE	EC, SYSC or EACJ courses	
Total Credits		5.0
M.Eng. Sustaina with Collaborativ Change (5.0 Cree	ve Specialization in Climate	

 Requirements:
 1.0 credit in:
 1.0

 CLIM 5000 [1.0]
 Climate Collaboration
 1.0

 2. 0.0 credit in:
 CLIM 5800 [0.0]
 Climate Seminar Series

 3. 1.5 credits in:
 1.5

	SERG 5001 [0.5]	Sustainable Energy Policy for Engineers		MECH 5802 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
	SERG 5003 [0.5]	Energy Evaluation and Assessment Tools		MECH 5803 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
Λ	SERG 5005 [0.5]	Applied Interdisciplinary Project		MECH 5804 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
	SERG 5800 [0.0]	Sustainable Energy Seminar		MECH 5805 [0.5]	Special Topics in Mechanical and	
5.	0.5 credit in:		0.5		Aerospace Engineering	
	Mechanical Engin	-		MECH 5806 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
	or Sustainable Ene	Conversion courses (listed below), rgy Policy courses		MECH 5807 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
	or Electrical Enginee	ering focus:		MECH 5808 [0.5]	Special Topics in Mechanical and Aerospace Engineering	
		Energy Systems courses (listed		MECH 5809 [0.5]	Special Topics in Mechanical and	
6	2.0 credits in:	ble Energy Policy courses	2.0		Aerospace Engineering	
0.	Mechanical Engin	eering focus:	2.0	Courses - Efficient	Electrical Energy Systems	
	Graduate-level ME	•		ELEC 5200 [0.5]	Advanced Topics in Integrated	0.5
	or				Circuits and Devices	
	Electrical Enginee	ering focus:		ELEC 5302 [0.5]	Renewable and Distributed Energy	0.5
	•	EC, SYSC or EACJ courses			Resource Technologies	~ -
Тс	otal Credits		5.0	ELEC 5405 [0.5]	Advanced Linear and Nonlinear Circuit Theory and Applications	0.5
C	ourses - Mechanica	al Energy Conversion		ELEC 5509 [0.5]	Integrated Circuit Technology	0.5
	ECH 5006 [0.5]	Solar Energy		ELEC 5707 [0.5]	Microsensors and MEMS	0.5
	ECH 5009 [0.5]	Environmental Fluid Mechanics		ELEC 5808 [0.5]	Signal Processing Electronics	0.5
	[]	Relating to Energy Utilization		ELEC 5900 [0.5]	Engineering Project I	0.5
Μ	ECH 5201 [0.5]	Methods of Energy Conversion		SYSC 5001 [0.5]	Simulation and Modeling	0.5
Μ	ECH 5203 [0.5]	Nuclear Engineering		SYSC 5004 [0.5]	Optimization for Engineering	0.5
Μ	ECH 5204 [0.5]	Fundamentals of Combustion			Applications	
Μ	ECH 5205 [0.5]	Building Performance Simulation		SYSC 5006 [0.5]	Design of Real-Time and	0.5
Μ	ECH 5206 [0.5]	Wind Engineering		SYSC 5103 [0.5]	Distributed Systems Software Agents	0.5
Μ	ECH 5402 [0.5]	Gas Turbines			Methodologies For Discrete-Event	0.5
El	VVE 5101 [0.5]	Air Pollution Control		SYSC 5104 [0.5]	Modeling And Simulation	0.5
	NVE 5104 [0.5]	Indoor Environmental Quality		SYSC 5105 [0.5]	Software Quality Engineering and	0.5
SI	ERG 5906 [0.5]	Directed Studies in Sustainable Energy		SYSC 5207 [0.5]	Management Distributed Systems Engineering	0.5
W	ith the approval of	the Department, the following		SYSC 5401 [0.5]	Adaptive and Learning Systems	0.5
		uded in the above list:		SERG 5906 [0.5]	Directed Studies in Sustainable	0.5
	VE 5705 [0.5]	Topics in Structures		02110 0000 [0.0]	Energy	0.0
	VE 5706 [0.5]	Topics in Structures		Courses Sustainal	ale Energy Bolicy	
	VE 5707 [0.5]	Topics in Structures		Courses - Sustainal PADM 5510 [0.5]		
	VE 5708 [0.5]	Topics in Structures		PADM 5510 [0.5]	Energy Economics Energy Management	
	VE 5709 [0.5]	Topics in Structures		PADM 5512 [0.5]	International Politics of Sustainable	
E	NVE 5701 [0.5]	Topics in Environmental Engineering			Energy	
EI	NVE 5702 [0.5]	Topics in Environmental Engineering		PADM 5572 [0.5]	Policy Seminar (Sustainable Energy)	
EI	NVE 5703 [0.5]	Topics in Environmental		PADM 5611 [0.5]	Science and Technology Policies	
EI	NVE 5704 [0.5]	Engineering Topics in Environmental		PADM 5612 [0.5]	Industrial Policy, Innovation and Sustainable Production	
		Engineering		PADM 5613 [0.5]	Science, Risk and Evaluation	
EI	NVE 5705 [0.5]	Topics in Environmental Engineering		PADM 5614 [0.5] PADM 5616 [0.5]	Natural Resource Management Environmental Policy	
Μ	ECH 5800 [0.5]	Special Topics in Mechanical and		PADM 5617 [0.5]	Implementing Sustainable	
	ECH 5801 [0.5]	Aerospace Engineering Special Topics in Mechanical and			Development in Industrialized Countries	
		Aerospace Engineering		PADM 5618 [0.5]	Environmental and Ecological Economics	

PADM 5619 [0.5]	Urban Sustainability	
PADM 5620 [0.5]	The Science, Politics and Economics of Global Climate Change	
SERG 5906 [0.5]	Directed Studies in Sustainable	

Other courses as approved by the MA supervisor

Regulations

See the General Regulations section of this Calendar.

Academic Standing

A grade of B- or better must be obtained in each course counted towards the master's degree.

Full-time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-) after two terms of full-time study (or equivalent), or if they receive a grade of less than B- in any two courses they have registered in.

Part- time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-) after completing 2.0 credits, or if they receive a grade of less than B- in any two courses they have registered in.

Regulations

See the General Regulations section of this Calendar.

Academic Standing

A grade of B- or better must be obtained in each course counted towards the master's degree.

Full-time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-) after two terms of full-time study (or equivalent), or if they receive a grade of less than B- in any two courses they have registered in.

Part-time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-) after completing 2.0 credits, or if they receive a grade of less than B- in any two courses they have registered in.

Regulations

See the General Regulations section of this Calendar.

Academic Standing

A grade of B- or better must be obtained in each course counted towards the master's degree.

Full-time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-) after two terms of full-time study (or equivalent), or if they receive a grade of less than B- in any two courses they have registered in.

Part-time Continuation

Students will be required to withdraw from the program if their weighted grade point average falls below 7.0 (B-)

after completing 2.0 credits, or if they receive a grade of less than B- in any two courses they have registered in.

Regularly Scheduled Break

For immigration purposes, the summer term (May to August) for the M.Eng. Sustainable Energy (coursework and project pathways only) is considered a regularly scheduled break approved by the University. Students should resume full-time studies in September.

Admission

Applicants must have a bachelor's degree (or equivalent), with an average of B+ or higher. The level of academic performance and potential demonstrated within the degree is more important than the discipline; students may enter the program from a wide variety of academic backgrounds in the social sciences, humanities, sciences and engineering. Mid-career applicants who do not have a bachelor's degree, but who have demonstrated professional excellence over a number of years of work in the public sector will also be considered.

All applicants must have completed 1.0 credit in universitylevel micro- and macroeconomic theory (ECON 1000 [1.0] or the equivalent)

0.5 credit in PSCI at the 2000-level or higher, dealing with institutions and processes by which governments legitimize and exercise power, ideally in a Canadian setting (PSCI 2003 or equivalent).

A working knowledge of algebra is also expected.

In some cases, applicants may be admitted to the program despite not having completed one of these prerequisite courses in economics or political science, on the condition that the course be completed with a grade of B- or higher in the first year of the program. It is strongly recommended that students complete the prerequisites before starting the program, to ensure that their progress through the core courses is unimpeded.

Students whose first language is not English or who have not completed a previous degree at an English speaking university must demonstrate an adequate command of English by attaining, at least, a TOEFL score of 237 CBT (computer-based test) or 580 (written); or 86 IBT overall with a minimum score in each component of: writing: 22; speaking: 22; reading: 20; and listening: 20, or a CAEL score of 70, or an IELTS score of 7.0.

Admission

Applicants must have a bachelor's degree (or equivalent) in a discipline relevant to engineering disciplinary foundations.

Normally, an average of B+ or higher is required for admission.

Admission

Applicants must have a bachelor's degree (or equivalent) in a discipline relevant to engineering disciplinary foundations.

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Co-operative Education

For more information about how to apply for the Co-op program and how the Co-op program works please visit the Co-op website.

All students participating in the Co-op program are governed by the Graduate Co-operative Education Policy.

Graduate Co-operative Education Policy

Admission and Participation Requirements

For co-op admission and participation requirements please visit: http://calendar.carleton.ca/grad/gradregulations/ administrationoftheregulations/#14.

Master of Arts, Sustainable Energy: Co-op Admission and Continuation Requirements

A co-op option is available to full-time students in the M.A. program. Students admitted to this option must satisfactorily complete at least two work terms in order to graduate with a co-op designation on their transcripts and diplomas. These work terms are four months in duration and locate students in government departments or other organizations in order to work at a junior officer level. They provide students with opportunities to integrate the theoretical and practical aspects of public administration. During a work term, students will register in PADM 5913. While on a work term, students are limited to an additional 0.5 credit course. It should be noted that most co-op positions in the federal public service are restricted to Canadian citizens.

Co-operative Education

For more information about how to apply for the Co-op program and how the Co-op program works please visit the Co-op website.

All students participating in the Co-op program are governed by the Graduate Co-operative Education Policy.

Graduate Co-operative Education Policy

Admission and Participation Requirements

For co-op admission and participation requirements please visit: http://calendar.carleton.ca/grad/gradregulations/ administrationoftheregulations/#14.

Master of Engineering, Sustainable Energy: Coop Admission and Continuation Requirements

A co-op option is available to full-time students in the M.Eng. program. Students admitted to this option must satisfactorily complete at least two work terms in order to graduate with a co-op designation on their transcripts and diplomas.

These work terms are four months in duration and locate students in government departments or other organizations in order to work at a junior level. They provide students with opportunities to integrate the theoretical and practical aspects of engineering and public administration. During a work term, students will be registered in SERG 5913. While on a work term, students are limited to an additional 0.5 credit course, which must be taken outside of work hours. It should be noted that most co-op positions in the federal public service are restricted to Canadian citizens.

Admission Requirements

Students who are interested in admission into the coop education option and who anticipate meeting the admission requirements outlined below by the end of their second term of academic study must apply by the end of their first term of academic study.

To be eligible for admission to the co-op option, students must:

- a. be registered in the M.Eng. Sustainable Energy program;
- b. have successfully completed, before the start of their first work term, a minimum of 2.0 credits towards the M.Eng. program (of which 0.5 credits must be SERG 5001), with a minimum GPA in the program of 9.0;
- c. be eligible to work in Canada (for off-campus work placements).

Meeting the preceding requirements only establishes eligibility for admission to the co-op option – the prevailing job market may limit enrolment in it. Students should also note that hiring priority is given to Canadian citizens for co-op positions under the auspices of the Public Service Commission. Every effort will be made to find a work placement for each student admitted into the co-op program, but there are no assurances that a co-op position will be found. Students with high CGPA, enthusiasm, and potential, however, will have a competitive edge in securing co-op employment. Students will be assisted by the Carleton University Co-op Office to find work term positions.

Graduation

Students must successfully complete two work terms with a grade of SAT for each, in addition to the M.Eng. degree requirements, to successfully graduate and receive a coop designation on their final transcript and diploma.

Work Term Course:

SERG 5913 [0.0] Co-operative Work term

0.0

Students who are accepted into the Co-op Education Option will be registered in SERG 5913 each time they secure a work term. In order to make it possible to complete their program no later than one study term after their two work terms, a student should also register in SERG 5004 during their fall work term.

Sustainable Energy (SERG) Courses

SERG 5001 [0.5 credit]

Sustainable Energy Policy for Engineers

This course introduces engineering students to the policy world by examining political and policy institutions, and covering basic principles of policy analysis, as they relate to the energy realm.

SERG 5002 [0.5 credit]

Sustainable Energy Engineering for Policy Students This course introduces policy students to fundamental principles of engineering, particularly as they relate to energy production, transformation and consumption.

SERG 5003 [0.5 credit]

Energy Evaluation and Assessment Tools

Introduction to principles and tools for financial and performance analysis of energy projects, systems and technologies, and their application. Topics may include: probability theory, regression analysis, cost-benefit analysis, life cycle analysis, carbon accounting and emissions modeling, and other techniques particular to the energy field.

SERG 5004 [1.0 credit]

Applied Interdisciplinary Project

Application of assessment tools, energy evaluation methods, engineering, economics and policy studies to actual sustainable energy projects.

Includes: Experiential Learning Activity

Precludes additional credit for SERG 5000 (no longer offered).

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

SERG 5005 [0.5 credit] Applied Interdisciplinary Project

Application of assessment tools, energy evaluation methods, engineering, economics and policy studies to actual sustainable energy projects. Includes: Experiential Learning Activity Precludes additional credit for SERG 5004. Prerequisite(s): SERG 5003 and one of SERG 5001 or SERG 5002.

SERG 5800 [0.0 credit] Sustainable Energy Seminar

A series of seminars presented by researchers and practitioners in the area of sustainable energy. To complete this course, a student must attend at least ten seminars during their program.

SERG 5906 [0.5 credit]

Directed Studies in Sustainable Energy A directed course on selected subjects related to

sustainable energy as approved by a course supervisor.

SERG 5909 [2.0 credits] MA Sustainable Energy Thesis Includes: Experiential Learning Activity

SERG 5913 [0.0 credit]

Co-operative Work term Includes: Experiential Learning Activity