



**Carleton  
University**

Department of Mechanical  
and Aerospace Engineering

## **Contract Instructor Teaching Opportunities Fall 2026 and Winter 2027**

Department of Mechanical & Aerospace Engineering

Pursuant to Article 16.3 of the CUPE 4600 Unit 2 Collective Agreement, subject to Article 16.2 and 16.4 through 16.7, applications are invited from members of the CUPE 4600 bargaining unit and other interested persons to teach the following courses in the Fall 2026 and Winter 2027 terms.

\*Candidates must have completed or be a candidate for a PhD degree in a relevant field of engineering. If the candidate has no PhD degree then consideration will be given to a high-level, distinguished career as evaluated by peers of at least two decades in a relevant engineering field. Candidates should have excellent communication and presentation skills; strong teaching skills established through successful teaching of engineering courses in an accredited Canadian university engineering program; and a high level of up-to-date expertise in the subject of the course, established through industrial experience and/or research in academia or government labs. A P.Eng. license in Canada is required for the instruction of most undergraduate courses.

Carleton University is committed to employment equity and fostering a culture of inclusion. We encourage applications from individuals who would contribute to the diversity of our campus, including women, visible minorities, First Nations, Inuit, and Métis peoples, persons with disabilities, and persons of any sexual orientation or gender identity and expression.

**Posting Date: May 1<sup>st</sup>, 2026**

**Application Deadline: June 1<sup>st</sup>, 2026**

**Application Page: <https://carleton.ca/deputyprovost/contract-instructor-application-faculty-of-engineering-and-design/>**

**Posting Type (Regular/Late): Regular**

**Contract Instructor Salaries for Fall 2026 and Winter 2027 courses:**

- **Half Credit Course: \$9,255**
- **Full Credit Course: \$18,508**

Academic Term	Course Code	Course Title	Course Description	Course Credit Value	Anticipated Modality	Anticipated Course Enrolment	Anticipated TA Support	Required qualifications
Fall	AERO 3240 A	<b>Orbital Mechanics</b>	Review of translational kinematics and dynamics. Keplerian two-body problem: Kepler's laws, orbital elements, orbit determination. Orbital perturbations: oblateness of the Earth, atmospheric drag. Orbital maneuvers and interplanetary flights. Advanced topics.	0.5	In-Person	50	1 TA @ 130 hrs	*See above
Fall	AERO 4003 A	<b>Aerospace Systems Design</b>	Stress and deflection analysis; fatigue, safe life, damage tolerant design. Propulsion systems integration; landing gear; control and other subsystems. Mechanical component design. Airworthiness regulations and certification procedures. Weight and cost estimation and control. System reliability. Design studies of aircraft or spacecraft components.	0.5	In-person	80	2 TAs @ 130 hrs each	*See above
Fall	AERO 4540 A	<b>Spacecraft Attitude Dynamics and Control</b>	Rigid body dynamics. The dynamic behavior of spacecraft. Environmental torques. The design of attitude control systems. Gravity gradient, spin, and dual spin stabilization. Attitude manoeuvres. The design of automatic control systems. Impacts of attitude stabilization techniques on mission performance.	0.5	In-person	40	None	*See above
Fall	EGEN 5508 F	<b>Introduction to Advanced Materials</b>	Introduction to advanced materials focusing on emerging materials like fibre-reinforced composite materials. Manufacturing methods of lightweight, safe and environment-friendly structures and their use in the industry. Standard analytical techniques (Micro and Macro approach) for materials' mechanical characterization and strength theories. Failure analysis of composites.	0.5	In-Person	10	None	*See above

Fall	MECH 4407 A	<b>Heating and Air Conditioning</b>	Environmental demands for residential, commercial and industrial systems. Methods of altering and controlling environment. Air distribution. Refrigeration methods, equipment and controls. Integrated year-round air-conditioning and heating systems; heat pumps. Cooling load and air-conditioning calculations. Thermal radiation control. Component matching. System analysis and design.	0.5	In-person	40	None	*See above
Fall	MECH 5005 F	<b>Uninhabited Aircraft Systems Design</b>	UAS design, operations, and mission analysis; operational challenges; theory of flight and vehicle performance; regulations and safety; human factors and system integration; system-level reliability and life cycle assessment; payload and sensor analysis.	0.5	In-person	40	None	*See above
Fall	MECH 5206 F	<b>Wind Engineering</b>	Theoretical and practical areas pertinent to the operation of wind turbines. World energy needs, wind farms versus traditional power plants, global wind characteristics, efficient turbine design, electrical components, modes of turbine operation and control, mechanical design, economic and environmental concerns.	0.5	In-person	40	None	*See above

Fall	SREE 3001 A	<b>Sustainable and Renewable Energy Sources</b>	Primary energy sources and their associated fundamental physics of conversion. Renewables: wind, large hydro, solar radiation, solar thermal. Fossil and biofuels. Nuclear. Climate science: the carbon cycle and the role of anthropogenic GHG emissions in climate warming. Terrestrial, thermodynamic and electrical limitations.	0.5	In-person	40	1 TA @ 130 hrs	*See above
Winter	AERO/ MAAE 2001 D	<b>Engineering Graphical Design</b>	Engineering drawing techniques; fits and tolerances; working drawings; fasteners. Elementary descriptive geometry; true length, true view, and intersection of geometric entities; developments. Aerospace-specific CAD (Computer-Aided Design) assignments including production of detail and assembly drawings from actual aerospace physical models.	0.5	In-person	120	2 TAs @ 130 hrs each	*See above
Winter	AERO 4009 A	<b>Aviation Management and Certification</b>	Product development, quality control. Strategic organizational analysis and design. Airworthiness, type certification and planning, delegation of authority, airplane flight manual. Aerospace system design and safety.	0.5	In-person	60	None	*See above
Winter	MECH 4105 A	<b>Introduction to Nuclear Engineering</b>	Atomic theory, nuclear physics, radioactivity, photoelectric effect, mass defect, binding energy, nuclides, neutron diffusion and moderation. Reactor theory, kinetics, control. Reactor types, reactor poisoning, xenon oscillations. Reactor materials, corrosion, fuel and fuel cycle. Nuclear medicine. Radiation protection, reactor safety fundamentals	0.5	In-person	60	None	*See above

Winter	MECH 5105 W	<b>Orbital Mechanics and Space Control</b>	Orbital dynamics and perturbations due to the Earth's figure, the sun, and the moon with emphasis on mission planning and analysis. Rigid body dynamics applied to transfer orbit and on-orbit momentum management and control of spacecraft. Effects of flexible structures on a spacecraft control system.	0.5	In-person	40	None	*See above
Winter	MECH 5500 W	<b>Advanced Vibration Analysis</b>	General theory of continuous and discrete multi-degree-of-freedom vibrating systems. Emphasis on numerical techniques of solving complex vibrating systems, with selected applications from aerospace, civil, and mechanical engineering.	0.5	In-person	40	None	*See above
Winter	SERG 5005 W	<b>Applied Interdisciplinary Project</b>	Application of assessment tools, energy evaluation methods, engineering, economics and policy studies to actual sustainable energy projects.	0.5	In-person	20	None	*See above

The following courses have been assigned to graduate students, post-doctoral fellows, or visiting scholars. These courses are not open for applications but the department will contact the most senior incumbent to review their rights under Article 17.6 of the CUPE 4600-2 Collective Agreement.

Academic Term	Course Code	Course Title	Course Description	Course Credit Value	Anticipated Modality	Anticipated Course Enrolment	Anticipated TA Support	Required qualifications
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Fall	AERO/MAAE 2001 B	<b>Engineering Graphical Design</b>	Engineering drawing techniques; fits and tolerances; working drawings; fasteners. Elementary descriptive geometry; true length, true view, and intersection of geometric entities; developments. Aerospace-specific CAD (Computer-Aided Design) assignments including production of detail and assembly drawings from actual aerospace physical models.	0.5	In-Person	120	2 TAs @ 130 hrs each	*See above
Fall	MAAE 2300 C	<b>Fluid Mechanics I</b>	Fluid properties. Units. Kinematics, dynamics of fluid motion: concepts of streamline, control volume, steady and one-dimensional flows; continuity, Euler, Bernoulli, steady flow energy, momentum, moment of momentum equations; applications. Fluid statics; pressure distribution in fluid at rest; hydrostatic forces on plane and curved surfaces; buoyancy.	0.5	In-person	150	3 TAs @ 130 hrs each	*See above
Winter	AERO/MAAE 2001 E	<b>Engineering Graphical Design</b>	Engineering drawing techniques; fits and tolerances; working drawings; fasteners. Elementary descriptive geometry; true length, true view, and intersection of geometric entities; developments. Aerospace-specific CAD (Computer-Aided Design) assignments including production of detail and assembly drawings from actual aerospace physical models.	0.5	In-person	120	2 TAs @ 130 hrs each	*See above
Winter	AERO 4602 A	<b>Introductory Aeroelasticity</b>	Review of structural behaviour of lifting surface elements; structural dynamics, Laplace Transforms, dynamic stability; modal analysis; flutter, Theodorsen's theory; flutter of a typical section; wing flutter, T-tail flutter, propeller whirl flutter; gust response; buffeting, limit cycle flutter.	0.5	In-person	40	1 TA @ 130 hrs	*See above

Winter	ECMP 5007 W	<b>Climate Change and Sustainability</b>	The complex and multifaceted elements of climate change and sustainable living are introduced in terms of the humanities, sciences, engineering, business and public policy perspectives, as well as root causes and potential adaptive responses.	0.5	In-Person	10	None	*See above
Winter	EGEN 5500 W	<b>Applied Fluid Mechanics</b>	Kinematics of fluid motion, fundamental fluid equations and concepts, laminar boundary layers, potential flow, stability and transition, introduction to turbulence, practical examples in mechanical engineering.	0.5	In-person	10	None	*See above
Winter	SREE 4002 A	<b>Modelling and Analysis of Energy Systems: Risk, Reliability, and Economics</b>	Energy technologies exist within a context of economic, policy, and behavioral choices that affect their adoption. This course will introduce engineering methods for analyzing risk, uncertainty, and system-level decision-making. We will investigate criteria that affect energy	0.5	In-person	50	1 TA @ 130 hrs	*See above

For more information, please contact Irene Helder at [irene.helder@carleton.ca](mailto:irene.helder@carleton.ca)

**Applications, in the form of a single PDF including a cover letter and CV, should be sent by June 1<sup>st</sup> 2026 to:**

Dr. Edgar Matida, Chair, Mechanical & Aerospace Engineering

<https://carleton.ca/deputyprovost/contract-instructor-application-faculty-of-engineering-and-design/>

A note to all applicants: As per Articles 16.3 and 16.4 in the CUPE 4600-2 Collective Agreement, the posted vacancies listed above are first offered to applicants meeting the incumbency criterion. A link to the current CUPE 4600-2 Collective Agreement can be found at the Academic Staff Agreements webpage on the Carleton University Human Resources website : <https://carleton.ca/hr/cu-files/cupe-4600-unit-2-collective-agreement/> and the CUPE 4600 website (<https://www.cupe4600.ca/>).

Applicants requiring accommodations at any stage of the recruitment process are encouraged to contact the Unit Chair or Director to ensure appropriate arrangements can be made in a timely manner.