

University of Victoria
Posting for CUPE 4163 Specialist Instructional (TA) – Fall 2022

Department: **Mechanical Engineering**

Term of appointment: **TAs are expected to be available from the beginning of the semester (Sep 7, 2022) and to assist with marking the final examination (exam period is Dec 7-21, 2022).**

Hourly Rate: **\$27.65**

BME 200 - Molecular and Cellular Physiology Instructor: **Karolina Valente**

Special Skills or Other Requirements:

- Responsible for grading assignments, holding office hours online, and running tutorials online that relate analyzing cells at a molecular level using engineering principles.
- Responsible for running oral online exams together with the instructor.
- Position will include running labs (face-to-face or online - still to be confirmed). Labs require a certain level of expertise on microfluidics, PCR and cell culture, in addition to WHMIS and Biosafety certificates from OHSE UVic.

**BME 401B/510/MECH 580 - Bioprinting: 3D Printing
Body Parts**

Instructor: **Karolina Valente**

Special Skills or Other Requirements:

- Expertise in serving as a teaching assistant in an online course
- Previously TAed this course preferred
- Expertise in 3D Bioprinting using the Allevi, Cellink, or Aspect systems

**BME 500 – Medical Device and Systems Design for
Clinical Engineers**

Instructor: **Karolina Valente**

Special Skills or Other Requirements:

- Excellent interpersonal and communication skills
- Must be able to take initiative and be flexible

**BME 501 – Biosensors and Imaging for Medical
Device Design**

Instructor: **Paris Vakiel**

Special Skills or Other Requirements:

- Excellent interpersonal and communication skills
- Must be able to take initiative and be flexible

ENGR 110/112 - Design and Communication I

Instructor: **Flavio Firmani**

Special Skills or Other Requirements:

- Primary duty is interacting with student teams online during labs advising students on their design exercises and projects, marking, student feedback. Also time during lecture hour on team learning activities.
- You must be outgoing, enjoy interacting with students, and able to communicate clearly and effectively in spoken and written English.
- Background in practical engineering design (concept generation/selection/refinement) and teamwork (conflict management, expectation setting) is essential

MECH 200 - Engineering Drawing	Instructor:	Vahid Ahsani
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Excellent interpersonal and communication skills • Proficiency with SolidWorks • Solid background in Engineering Drawing and descriptive geometry • Being familiar with the Engineering Design Process • Available to attend online lectures to help the instructor in moderating online classes • Available to supervise SolidWorks labs/tutorials remotely 		
MECH 240 - Thermodynamics	Instructor:	Saeedeh Saghatoun
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Strong background and knowledge in thermodynamics • Excellent interpersonal and communication skills • Must be able to take initiative and be flexible 		
MECH 242 - Dynamics	Instructor:	Mario Bras
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Knowledge of rigid body dynamics and related mathematical background (vector algebra, matrix algebra, coordinate representation of vector equations using matrix notation). • Experience with Matlab and Simulink (for consulting with students on numerical implementations of solutions to problem sets and marking the project). 		
MECH 330 - Intro to Mechanical Vibrations	Instructor:	Saeedeh Saghatoun
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Solid knowledge of rigid body dynamics, multi-degree of freedom vibrations, and relevant mathematical background (ODES, Laplace transformations, Fourier analysis, vector and matrix algebra). • Proficiency with Matlab and Simulink software. • Duties include: 1. preparing solutions to, consulting with students on, and marking assignments, including Matlab/Simulink component; 2. running lab sessions and marking lab reports; 3. assisting in the marking of midterm and final exams 		
MECH 345 – Mechanics of Fluids	Instructor:	TBD
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Candidates should have a strong background in fluid mechanics. • Previous experience in running labs is an asset • Previous experience teaching Thermofluidic courses is an asset 		
MECH 360 - Design of Mechanical Elements	Instructor:	Nick Dechev
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Experience with mechanical design and machine elements • Good interpersonal and communication skills for partial supervision of the MECH 360 Design Project • Experience with Gear Train Design, shafts, bearings and fasteners 		

MECH 380 - Automatic Control Engineering	Instructor:	Yang Shi
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Solid knowledge of control theory and related mathematical background (Laplace transformations, matrix algebra and analysis, complex variable theory; transfer-function based analysis and design; frequency-characteristics based analysis design; state-space analysis and design). • Proficiency with Simulink software. Duties include consulting with students on Simulink applications and correction/evaluation of three students' projects. 		
MECH 395 - Heat Transfer	Instructor:	Meitham Amereh
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Explaining concepts & methods for heat conduction, convection & radiation calculation • Helping students to apply these methods to energy systems, bio systems & manufacturing • Guiding students to recognize examples of HT in daily life (e.g. the kitchen, HVAC) 		
MECH 410/520 - Computer-Aided Design and Engineering	Instructor:	Zuomin Dong
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Previously taken MECH 410/520 or equivalent course required • Knowledge of Siemens NX CAD/CAE (FEA/CFD) required • Knowledge of Solidworks desirable 		
MECH 431 – Advanced Fluid Mechanics	Instructor:	Peter Oshkai
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Previously taken MECH 531 or experience with fluid mechanics required • Previous experience being a TA for Advanced Fluid Mechanics (MECH 450E) 		
MECH 444/547 – Wind Power Systems	Instructor:	Curran Crawford
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Candidate required to have Python programming experience • Candidate required to have experience with wind turbines/wind energy systems and associated calculations • Duties include helping to manage team learning exercises during lecture time, and supervising assignment and project activities during lab times • Must have technical knowledge of wind energy, in particular aerodynamics, aero elasticity and working knowledge of Python/Jupyter 		
MECH 450A/550 – Advanced Control Systems	Instructor:	Yang Shi
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Solid knowledge of advanced control theory and related mathematical background (State-space model, controllability/observability, stability analysis, and so on) • Proficiency with Matlab/Simulink software. 		
MECH 450B/580 A02 – Mechanics of Soft Materials	Instructor:	Gerald Fuller
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Graduate-level fluid mechanics classwork • Classical “strength of materials” classwork • Good organizational skills • Knowledge of ODE’s and PDE’s 		

MECH 450C/580 A03 – Energy Conversion & Storage	Instructor:	Andrew Rowe
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Knowledgeable in Thermofluids – thermodynamics, heat transfer, fluid mechanics 		
MECH 450D/580 A04 – Digital Twins in Energy Systems	Instructor:	Curran Crawford
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Candidate required to have Python and machine learning modeling experience • Ideal candidate will have taken courses relevant to the above • Ideal candidate experience with some aspect of energy systems and/or digital twin implementation 		
MECH 450E – Control Systems II	Instructor:	Homayoun Najjaran
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Familiarity with Advanced Control Systems • Linear Algebra • Basic Mechanical Systems Modeling • Basic Electrical Systems Modeling • MATLAB and SIMULINK 		
MECH 458/554 - Mechatronics	Instructor:	Yang Shi
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Hands-on experience with Atmel microprocessor programming • Previously taken MECH 458/554 		
MECH 459/558 - Fundamental of Hybrid Vehicles	Instructor:	Zuomin Dong
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Previously taken MECH 459/558 required • Knowledge of AUTONOMIE required • Knowledge of ADVISOR required 		
MECH 473/573 -Ferrous and Non-Ferrous Metals	Instructor:	Rodney Herring
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Previously taken materials science or materials engineering course (e.g. Mech 285) required. 		
MECH 486 – Sensors and Actuators	Instructor:	Nick Dechev
Special Skills or Other Requirements: <ul style="list-style-type: none"> • Excellent interpersonal and communication skills • Must be able to take initiative and be flexible 		

MECH 576 – Intro to Electron Microscopy

Instructor:

Rodney Herring**Special Skills or Other Requirements:**

- TA should have knowledge of electron microscopy
- Preferably have previously been the TA for the course
- Ideal candidate will have previously taken course or similar experience

MECH 580 A05 – Nanomaterials for Biomedical Applications

Instructor:

Somayeh Fardindoost**Special Skills or Other Requirements:**

- The candidate is required to have a background in nanotechnology and material science (preferably bio-nanotechnology) or should have completed any courses related to nanotechnology and nanomaterials.
- Duties include help in marking weekly assignments.

MECH 594/595/695 - Seminar

Instructor:

Ben Nadler**Special Skills or Other Requirements:**

- Candidate will coordinate seminars, introduce speakers, collect feedback, prepare the next term's schedule, and maintain attendance spreadsheet