

## Job Description

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<b>Job Title:</b>	Engineering Student Machine Shop CNC Instructor
<b>Department:</b>	Sedra Student Design Centre
<b>Reports To:</b>	Manager, Sedra Student Design Centre
<b>Jobs Reporting:</b>	None
<b>Salary Grade:</b>	USG 8
<b>Effective Date:</b>	February 1, 2018

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### **Primary Purpose**

The Engineering Student Machine Shop CNC Instructor teaches the knowledge, demonstrates the skills, as well as approves and enables the activities required for undergraduate and graduate Engineering students and other approved individuals to safely use the equipment and resources of the Engineering Student Shops. The primary location of the job will be the Engineering Student Machine Shop located in Engineering 5. Depending on demand, the job may also be located in the Wood Shop located in E5, and the Engineering Project Shop located in Engineering 7.

### **Key Accountabilities**

#### **Teach manufacturing techniques and demonstrate manufacturing skills**

- Teach inexperienced students, both individually and in a small group setting, fundamental machining knowledge and fabrication techniques
- Demonstrate the correct use of machine shop equipment and tools
- Give opportunities for practice and demonstrate techniques that enhance and develop students' machining and fabrication skills
- Provide individual instruction to experienced machine shop students on the correct setup and use of Computer Numerical Control (CNC) equipment and programming Computer Aided Machining (CAM) software
- Establish a mentoring relationship with students who use the shop frequently

#### **Approve student activities, monitor progress and provide feedback**

- Respond to questions regarding proper and safe use of machine shop equipment
- Review student designs and drawings and provide feedback that includes safety considerations, manufacturability, skill level, and tooling and equipment requirements prior to giving permission for machining
- Approve equipment set up and monitor progress of machining, especially for new users
- Direct and control student activities, particularly when a machining or fabrication process must be modified or stopped immediately due to safety concerns

#### **Supervise all shop users**

- Ensure that all shop users comply with all safety requirements, including maximum occupancy, use of personal protective equipment (PPE), securing loose clothing or long hair, etc.
- Enforce all safety regulations in regards to safe operation of all equipment as specified in the Safety Manual and the Standard Operation Procedures
- Assist the manager with the day to day supervision of undergraduate co-op students
- Provide assistance for the Manager to support the facilities of the student team work bays and the shared-use resources of the Sedra Student Design Centre

#### **Maintain machine shop equipment and inventory**

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- Ensure that all shop equipment is in safe working order, i.e. performing routine pre-use inspections, verifying safety features are in place and adjusted properly, and notifying the Manager of any deficiencies
- Perform regular scheduled maintenance and repairs of equipment as required
- Assist the Manager with monthly safety inspections
- Maintain inventory of tooling and shop supplies that are available to students
- Other duties as assigned

### Required Qualifications

#### **Education**

- High School Diploma and a Certificate of Qualification (Ontario preferred) in one of the following trades: General Machinist, Tool & Die Maker, Mould Maker

#### **Experience**

- 7+ years of demonstrated experience in a broad spectrum of metalworking machinery and a suite of skills applicable to the machining / fabricating trades
- 7+ years of demonstrated experience programming and operating CNC machine tools in combination with expertise using the machine relevant and current versions of MasterCam
- Extensive teaching and mentoring experience of students and/or apprentices in a shop setting required
- Highly skilled in all machining and fabrication methods and techniques
- Experience in the tracking and maintaining of supply inventory
- Experience with maintaining and repairing tools and machinery
- Experience with wood working and CNC routers is an asset

#### **Knowledge/Skills/Abilities**

- Basic MS Office skills
- Experience with MasterCam, Solidworks and CNC controllers
- Excellent communication skills to train and demonstrate machining skills to both individual or small groups
- Comfortable with providing constructive feedback to students
- Ability to maintain attention to detail in a fast paced, multitasking environment
- Ability to manage multiple, competing priorities
- Confident problem solving abilities

### Nature and Scope

- **Contacts:** Excellent interpersonal and communication skills applicable to diverse groups, including students from many backgrounds with different experience levels, as well as staff and faculty members. Communication with students is typically teaching and mentoring in nature. Exchange or provide information to external contacts, including suppliers, customers, visitors and members of the general public.
- **Level of Responsibility:** Independently advises and instructs students, and provides feedback. Grants permission to students for machining when trained. Manages supplies inventory.
- **Decision-Making Authority:** Problems and decisions typically faced by this position fall within established procedures. Any non-routine problems are escalated to the Manager.
- **Physical and Sensory Demands:** Physical demands are typical of a manufacturing environment; standing for long periods of time, exposure to machine noise, heavy lifting and potential for injury. Sensory demands of dealing with large numbers of students can be a distraction and a source of fatigue and strain. Must perform first aid and handle safety emergencies as they arise.

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- **Working Environment:** Machine shop; standing and walking on a concrete floor, exposure to machine noise. The job has rotating shifts to ensure that there is at least one instructor in the E5 Machine Shop at all times. All shifts will be shared equally between the instructors assigned to the E5 Machine shop. Day shift, Monday – Friday 8:30am – 4:30pm, Evening shift, Monday – Friday 1:00pm – 9:00pm. Saturdays 10:00am – 5:00pm. The person who works the Saturday will have the following Monday off to allow for a 2 day weekend.