

## Finance Committee Meeting(s) - February

Members in Attendance: Andrew Boetto (VP Finance), Kevin Rupasinghe (Board), Twesh Upadhyaya (Board), Maddy Santia (Finance Secretary), Cory Sulpizi (Director of Club Funding), Sourabh Das (Director of Student Levies), Raneem Shammam (VP Student Life),

### **Levy Fund Applications**

*Note: The Levy Fund Summary describing project applications and the amounts recommended for approval by the finance committee is provided at the end of these minutes.*

#### **Civil/Min Department**

Civ Common Room

- We gave them money towards this last year

Portable Laser Particles

- Considering to give a partial amount for this

In-Class Demonstration Unit

- Can sign it out upon request (mentions design teams that can use it)
- Laptop cost is expensive
  - The specs are really high tech

LMB 4th floor computer

- Students have access to the lab at all times

#### **Engsci/IBBME**

Satellite Makers Space in Chestnut Residence Hall

- Only services Chestnut students
- CEIE will have this accessibility
- Redundant service

VR Simulation Project

- A lot of money per student
- Understand it is a pilot project
- Software Licences are not a capital cost, but an operating expense
- Willing to fund hardware equipment as partial funding because EngSoc sees value in project
- If pilot project works willing to fund in future for long term licenses

## CALIBRE Cloud

- This type of technology will be obsolete in 5 years
- Very expensive
- Small number of students using the device

## MSE Department

### Computers for the MSE Undergraduate Computer Lab

- This fits into the fund because it improves what the faculty is providing
- Only project from MSE

## FASE

### CEIE Building - Arena, Fabrication, and Rapid Prototyping Facilities

- All of engineering students access
- Available outside of class hours but not 24/7 since it is supervised
- On the upstairs floors of CEIE

### MB & HS Hallway Study Seating

- Not going to be impactful for students because it would be adding in a small number of seats in unutilized spaces by undergraduate students
- Recommend the faculty to put it in a more suitable location

## ECE Department

### Optical Analyzer

- Will be used for a long time span
- Recommend 80% funded

### DC Microgrid

- Is essential to inspiring a whole new future set of courses for ECE
  - RE: Ryerson has similar technology that has been proven
- Has availability to many students
- Cutting edge technology

### Solder and Vacuum

- Represents a gap currently observed in ECE and can be used by EngSci students as well
- Affects a large representative of the ECE student population (Design Centre)

### Power Supply and Cover

- Clarify with ECE what the manufacturing cost from the MIE shop cost is referring to?
- Otherwise, fits the requirements and goals of the fund we just want to verify these costs

#### RT Linux

- Does not discuss how it could be utilized outside of academics
  - Not above and beyond the requirements

#### Arduino

- Contributes to undergrad experience
  - Can be utilized by students in off hours
- Give them a condition that this lab has to have more accessible hours for students

#### Motors

- Contributes to undergrad experience
- Current equipment is really old

#### Pendulum

- Contributes to undergrad experience
- Small Expense

#### Sensor

- Does not discuss how it could be utilized outside of academics
  - Not above and beyond the requirements
- They already have this and they want to just get more
  - This is something that should be funded by the faculty
- Not really enhancing undergraduate education but is necessary investment for increasing enrollment that the Finance Committee believes the university should be providing funding for

### **MIE Department**

#### EddyView NDT testers

- Good project for TLF but only used for one lab
- Still affects a lot of students

#### Uniaxial Tissue Tester

- Low initial exposure to students
- Hard to be accessed outside of class
- Partially funding
  - Will only be funding 1 machine
  - If this machine has success and is exposed to a lot of students, etc then they're encouraged to reapply for more in the next year

#### Online Locknetics lock for MB225A common study room

- Makes the lives of many students easier

- Affects large number of students

#### Amazon EC3 Computing - MIE335 + others

- Not something that we will fund yearly (annual operating expense)
- If it does work, they are recommended to look into a more permanent solution

#### Metrology and Work holding Equipment for Student Machine Shop

- 150 Students per month visit machine shop
- Open to all students; available outside of class hours
- Additional equipment to accommodate the increase in students

#### Strain Gauge Data Acquisition System

- Project is a necessary update in equipment for the continuation of the current MIE222 laboratory curriculum; as such is solely an academic project and should be funded using tuition money and not the TLF

PREPARED FOR ENGSOC

---

**LEVY FUND SUMMARY (2016-2017)**

---

February 20, 2017

## CONTENTS

<b>1</b>	<b>NΨ</b>	<b>1</b>
1.1	SATELLITE MAKER'S SPACE AT CHESTNUT - NSCI 01.....	1
1.2	VR SIMULATION PROJECT (IBBME) - NSCI 02.....	2
1.3	CALIBRE CLOUD (IBBME) - NSCI 03.....	3
<b>2</b>	<b>MSE</b>	<b>4</b>
2.1	CES EDUPACK SOFTWARE - MSE 01 .....	4
<b>3</b>	<b>MIE</b>	<b>5</b>
3.1	EDDDYVIEW NDT TESTERS - MIE 01 .....	5
3.2	UNIAXIAL TISSUE TESTER - MIE 02.....	6
3.3	ONLINE LOCKNETICS LOCK FOR COMMON STUDY ROOM - MIE 03 .....	7
3.4	AMAZON EC2 COMPUTING 04 .....	8
3.5	METROLOGY AND WORK HOLDING EQUIPMENT. - MIE 05 .....	9
3.6	STRAIN GAUGE DATA ACQUISITION SYSTEM - MIE 06.....	10
<b>4</b>	<b>ECE</b>	<b>11</b>
4.1	OPTICAL ANALYZER - ECE 01 .....	11
4.2	DC MICROGRID - ECE 02.....	12
4.3	SOLDER AND VACUUM - ECE 03.....	13
4.4	POWER SUPPLY AND COVER - ECE 04 .....	14
4.5	RT LINUX - ECE 05.....	15
4.6	PENDULUM - ECE 06.....	16
4.7	MOTORS - ECE 07 .....	17
4.8	ARDUINO - ECE 08 .....	18
4.9	BOARD AND CAMERA - ECE 09.....	19
4.10	SENSOR - ECE 10 .....	20
<b>5</b>	<b>FASE</b>	<b>21</b>
5.1	ARENA FABRICATION AND RAPID PROTOTYPING FACILITIES - FASE 01 .....	21
5.2	MB & RS HALLWAY STUDY SEATING - FASE 02.....	22
<b>6</b>	<b>CIV</b>	<b>23</b>
6.1	COMMON ROOM REFURBISHMENT AND NEW FURNITURE - CIV 01.....	23
6.2	PORTABLE LASER PARTICLES - CIV 02.....	24
6.3	IN-CLASS DEMONSTRATIONS UNITS - CIV 03 .....	25
6.4	MB 4 <sup>TH</sup> FLOOR COMPUTER LAB - CIV 04 .....	26

## 1.1 Satellite Maker's Space at Chestnut

**NSCI-01**

Renovations and improvements to work space in Chestnut Residence to enhance safety, security and access to currently unused work space. Renovations include removal of internal walls, painting of walls, carpet removal and epoxy sealant applied to floor . Enhancements include adding work surfaces, ventilation upgrades, electrical upgrades, secured access, security camera installation and lockers for project storage space.

<b>Courses Affected</b>	ESC102,
<b>Students Affected/Total Enrollment</b>	500
<b>Total Cost (shipping + HST incl.)</b>	\$30,740.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$20,250.00
<b>Lifespan</b>	Unspecified
<b>Location(s)</b>	Chestnut Residence Hall

**Finance Committee approval:** **\$0**

**1.2 VR Simulation Project (IBBME)****NSCI-02**

A resource to provide virtual biological and chemical lab simulations to complement theory learnt in class. IBBME will be working with Labster, a educational company that develops simulations within a 3D environment. The equipment and experience gained from using these VR sets in class will be used to gauge better understanding of how VR technology can be implemented into the curriculum faculty-wide. The cost of this project covers 12 Google Daydream headsets, 12 Motorola Moto Z with complementary apps, and relevant Labster licences.

<b>Courses Affected</b>	BME 210/205/346/350/358/ 359/396/440/510/595, AER 210, CHE 354
<b>Students Affected/Total Enrollment</b>	707
<b>Total Cost (shipping + HST incl.)</b>	\$19,984.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$13,322.67
<b>Lifespan</b>	5-7 years
<b>Location(s)</b>	MB332

**Finance Committee approval:** **\$8,555.86**



**1.3 CALIBRE Cloud (IBBME)****NSCI-03**

Deep learning supercomputer infrastructure with mobile machine learning capabilities, high performance big data storage, cloud computing, resource sharing, rapid prototyping and enhanced simulation capabilities. This includes a Deep Learning Supercomputer in a Box, 10 Embedded System Developer Kits, 3 high-performance servers, 3 GPU's and storage.

<b>Courses Affected</b>	Unspecified
<b>Students Affected/Total Enrollment</b>	Unspecified
<b>Total Cost (shipping + HST incl.)</b>	\$155,531.89
<b>Net Requested amount (shipping +HST incl.)</b>	\$103,687.93
<b>Lifespan</b>	5 years
<b>Location(s)</b>	Cloud

**Finance Committee approval:** **\$0**

## 2.1 MSE Undergraduate Computer Lab

## MSE-01

The WB158 lab workstations are obsolete. The MSE undergrad computer lab upgrade will allow installation of upgraded software as well as run significantly faster. 24 units will be purchased.

<b>Courses Affected</b>	N/A
<b>Students Affected/Total Enrollment</b>	205
<b>Total Cost (shipping + HST incl.)</b>	\$48,785.90
<b>Net Requested amount (shipping +HST incl.)</b>	\$32,523.93
<b>Lifespan</b>	4-5 years
<b>Location(s)</b>	WB158

**Finance Committee approval:**

**\$32,523.93**

### 3.1 EddyView NDT Testers

### MIE-01

Non-Destructive Testing units. These units will facilitate a non-destructive lab for inspecting cracks in metals. Currently non-destructive testing methods and its importance in finding flaws in materials are discussed in class but no corresponding lab exists. 6 units will be purchased to facilitate labs with group sizes of 2 per unit. The equipment will be available for loan when not in use for class.

<b>Courses Affected</b>	MIE270
<b>Students Affected/Total Enrollment</b>	220
<b>Total Cost (shipping + HST incl.)</b>	\$67,780.71
<b>Net Requested amount (shipping +HST incl.)</b>	\$45,187.14
<b>Lifespan</b>	20 years
<b>Location(s)</b>	MC215

**Finance Committee approval:**

**\$45,187.14**

## 3.2 Uniaxial Tissue Tester

## MIE-02

Mechanical test system for soft materials. Used for testing soft tissues in biological systems and engineered materials. Currently mechanical testing is done by booking external research lab facilities which is difficult to arrange, often requires expensive lab fees and tend to be run by technicians instead of students. Equipment will be used for new biomechanics labs, capstone and DEEP programs immediately as well as implemented into more core materials courses eventually. 3 units will be purchased.

<b>Courses Affected</b>	MIE439
<b>Students Affected/Total Enrollment</b>	35-40
<b>Total Cost (shipping + HST incl.)</b>	\$30,510.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$20,340.00
<b>Lifespan</b>	15 years
<b>Location(s)</b>	IBBME Lab

**Finance Committee approval:** **\$10,170.00**

**3.3 Online Locknetics Lock for Common Study Room****MIE-03**

T-card access to MB225A, a common study room with setup for teleconferencing and presentations. Access is currently provided by MIE club staff with a key. This installation will allow easier access and tracking abilities. A stand-alone system is not possible as there are too many MIE students for its memory to handle. This application is in conjunction with “3.4 Amazon EC2 Computing – MIE04” to provide students easier access and facilitate the cloud computing project.

<b>Courses Affected</b>	N/A
<b>Students Affected/Total Enrollment</b>	1200+
<b>Total Cost (shipping + HST incl.)</b>	\$10,000.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$6,666.67
<b>Lifespan</b>	15 years
<b>Location(s)</b>	MB225A

**Finance Committee approval:**

**\$6,666.67**

### 3.4 Amazon EC2 Computing

### MIE-04

Pilot project by Industrial Engineering to provide cloud computing hours to Indy students. It will use Amazon's cloud computing services and provide 35 hours of computing time per student. The success of this project will be used determine what course of action Industrial Engineering will take to make cloud access a permanent/long term solution. Although a non-capital cost, an argument was made for Industrial Engineering being underrepresented in the Levy Fund due to the nature of the resources used in the department.

<b>Courses Affected</b>	MIE335
<b>Students Affected/Total Enrollment</b>	115
<b>Total Cost (shipping + HST incl.)</b>	\$5,000.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$3,333.33
<b>Lifespan</b>	1 year
<b>Location(s)</b>	MB225A

**Finance Committee approval:** **\$3,333.33**

### 3.5 Metrology and Work Holding Equipment

### MIE-05

Machining equipment for the Student Machine Shop. MIE has opened up its student shop to all undergrad students (from just MIE students) and as a result has seen increased traffic and increased wait times. To meet this demand, the machine shop is looking to increasing its stock of spare tools and machining parts. Items include micrometers, drill chucks, setup blocks, a collet spin fixer and a rotary chuck.

<b>Courses Affected</b>	MIE 442/440
<b>Students Affected/Total Enrollment</b>	150/month
<b>Total Cost (shipping + HST incl.)</b>	\$8,316.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$5,544.00
<b>Lifespan</b>	unspecified
<b>Location(s)</b>	Student Machine Shop

**Finance Committee approval:**

**\$5,544.00**

### 3.6 Strain Gauge Data Acquisition System

**MIE-06**

Current strain gauge system is outdated and not fully functioning. Equipment is used for stress/strain demonstration and analysis for solids lab, and is requirement for core curriculum. Equipment and software needs replacing.

<b>Courses Affected</b>	MIE222
<b>Students Affected/Total Enrollment</b>	225
<b>Total Cost (shipping + HST incl.)</b>	\$6,272.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$4181.33
<b>Lifespan</b>	20 years
<b>Location(s)</b>	MC222

**Finance Committee approval:** **\$0**



## 4.1 Optical Analyzer

## ECE-01

An optical spectrum analyzer is a specialized precision instrument to measure power distribution of an optical source over a broad range of wavelengths. Current equipment is about 12 years old and uses floppy disks and is limited by old software. 5 units are proposed to account for increasing number of students.

---

<b>Courses Affected</b>	ECE 469
<b>Students Affected/Total Enrollment</b>	46
<b>Total Cost (shipping + HST incl.)</b>	\$140,508.50
<b>Net Requested amount (shipping +HST incl.)</b>	\$93,672.33
<b>Lifespan</b>	20-25 years
<b>Location(s)</b>	SF2112

---

**Finance Committee approval:** **\$49,958.40**

## 4.2 DC Micro-grid

## ECE-02

Creation of renewable DC Micro-grid consisting of solar panels, converters/inverters, real time control, battery storage, grid connection, LED lighting to be used for various energy labs. Total cost shown is ECE departments portion of a \$1.6mil project by Uoft's Capital Projects. The project aims at creation of a unique DC micro-grid with applications, and teaching capacity. Project brings opportunities to introduce new undergraduate courses for "reduced scale" DC micro-grid and introduce topics such as battery and solar sizing, energy dispatch, control efficiency, real time data collection and optimization, grid cyber security, data monitoring techniques, AC grid bidirectional connection and safety issues, smart grid, etc.

<b>Courses Affected</b>	ECE 314/349/463/533
<b>Students Affected/Total Enrollment</b>	300+
<b>Total Cost (shipping + HST incl.)</b>	\$325,000.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$216,666.67
<b>Lifespan</b>	25 years
<b>Location(s)</b>	GB040

**Finance Committee approval:**

**\$175,000.00**

### 4.3 Solder and Vacuum

### ECE-03

A specialized soldering station and exhaust system to support design projects and individual projects. The current equipment currently lacks a desolder, hot air pen and a vacuum with adequate ventilation.

<b>Courses Affected</b>	ECE496
<b>Students Affected/Total Enrollment</b>	301
<b>Total Cost (shipping + HST incl.)</b>	\$8,337.77
<b>Net Requested amount (shipping +HST incl.)</b>	\$5,558.51
<b>Lifespan</b>	5 years
<b>Location(s)</b>	SF B520

**Finance Committee approval:** **\$3,706.00**

## 4.4 Power Supply and Cover

## ECE-04

5&12V Dual Power Supply with metal covers to upgrade current power sources. Current power sources are modified 20 year old units which lead to failures regularly. New power sources will be more reliable and covers will protect from exposed contacts. Part of hardware will be manufactured in the MIE machine shop for a fee which is included as part of the total cost of the project. 110 units will be purchased.

<b>Courses Affected</b>	ECE 241/243
<b>Students Affected/Total Enrollment</b>	750
<b>Total Cost (shipping + HST incl.)</b>	\$16,219.81
<b>Net Requested amount (shipping +HST incl.)</b>	\$10,813.21
<b>Lifespan</b>	20 years
<b>Location(s)</b>	BA 3135/3145/3155/3165

**Finance Committee approval:**

**\$7,208.67**

## 4.5 RT Linux

## ECE-05

Equipment for energy lab including Acromag DAC, DAS, and carrier boards. Equipment is essential for Real Time Linux systems and used in many undergrad core course labs for topics in DC/DC conversion, AC/DC conversion, transformer behaviour, various drive system topologies, permanent magnets and induction machines. New units will add to the stock of current RT Linux platforms available. 3 units will be added.

<b>Courses Affected</b>	ECE 314/463
<b>Students Affected/Total Enrollment</b>	144
<b>Total Cost (shipping + HST incl.)</b>	\$12,180.43
<b>Net Requested amount (shipping +HST incl.)</b>	\$8,120.29
<b>Lifespan</b>	10+ years
<b>Location(s)</b>	GB040

**Finance Committee approval:** **\$0**

## 4.6 Pendulum

## ECE-06

Pendulum and Servo motor units for dynamics systems labs used for differential equation modeling, feedback control systems modeling and plotting simulations. 4 units will be purchased. Equipment will be used for labs as well as be available for sign out for use for design projects.

---

<b>Courses Affected</b>	ECE 311/410/411 AER 372
<b>Students Affected/Total Enrollment</b>	369
<b>Total Cost (shipping + HST incl.)</b>	\$1,306.57
<b>Net Requested amount (shipping +HST incl.)</b>	\$871.05
<b>Lifespan</b>	10+ years
<b>Location(s)</b>	BA3114

---

**Finance Committee approval:** **\$580.67**

## 4.7 Motors

## ECE-07

Servo/Cart motor for dynamics systems labs used for differential equation modeling, feedback control systems modeling and plotting simulations. 20 units will be purchased. Equipment will be used for labs as well as be available for sign out for use for design projects.

---

<b>Courses Affected</b>	ECE 311/410/411 AER 372
<b>Students Affected/Total Enrollment</b>	369
<b>Total Cost (shipping + HST incl.)</b>	\$7,890.22
<b>Net Requested amount (shipping +HST incl.)</b>	\$5,260.15
<b>Lifespan</b>	10+ years
<b>Location(s)</b>	BA3114

---

**Finance Committee approval:** **\$3,506.67**

## 4.8 Arduino

## ECE-08

Arduino boards for used in control systems labs. Each unit will consist of a Mega 2560 Microcontroller board, 3A power supply, motor shield and an Interface Cable Upgrade. Will be used with pendulum lab. Current microcontrollers are limited by their I/O capabilities. Units will be available to sign out for projects. 20 units will be purchased.

---

<b>Courses Affected</b>	ECE410
<b>Students Affected/Total Enrollment</b>	60
<b>Total Cost (shipping + HST incl.)</b>	\$3,202.99
<b>Net Requested amount (shipping +HST incl.)</b>	\$2135.33
<b>Lifespan</b>	5-10 years
<b>Location(s)</b>	BA3114

---

**Finance Committee approval:** **\$1423.33**



**4.9 Board and Camera****ECE-09**

Digilent NEXSYS video board and HDMI camera for hardware intensive course. Equipment to support both lab experiments and student-proposed projects. Equipment will be available for sign-out. Currently 5 units are already in use. Proposal is to purchase 5 additional units to meet demand.

<b>Courses Affected</b>	ECE 532
<b>Students Affected/Total Enrollment</b>	40
<b>Total Cost (shipping + HST incl.)</b>	\$4079.79
<b>Net Requested amount (shipping +HST incl.)</b>	\$2719.86
<b>Lifespan</b>	5 years
<b>Location(s)</b>	BA 3135/3145/3155/3165

**Finance Committee approval:**

**\$1813.33**

## 4.10 Sensor

## ECE-10

Current sensors (transducers) for energy lab. The two courses use current sensors extensively for their lab setup. Some sensors are already in use but additional units are being purchased for more thorough analysis during labs. 7 units will be purchased.

<b>Courses Affected</b>	ECE 314/463
<b>Students Affected/Total Enrollment</b>	144
<b>Total Cost (shipping + HST incl.)</b>	\$2,001.23
<b>Net Requested amount (shipping +HST incl.)</b>	\$1,334.15
<b>Lifespan</b>	10+ years
<b>Location(s)</b>	GB040

**Finance Committee approval:** **\$0**

## 5.1 Arena, Fabrication and Rapid Prototyping Facilities **FASE-01**

Equipment and facilities for supporting student clubs, Hatchery activities in the new CEIE building. 3 spaces aimed to support students will be enhanced; an arena, a Fabrication Facility and a Rapid Prototyping Facility. It will provide space and facilities for ESP and Praxis students as well as supporting any other school or personal projects by students. It will be open for extended hours to help facilitate students.

<b>Courses Affected</b>	APS112/APS113, any design course
<b>Students Affected/Total Enrollment</b>	all students
<b>Total Cost (shipping + HST incl.)</b>	\$105,510.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$70,340.00
<b>Lifespan</b>	5-30 years (depending on the tool)
<b>Location(s)</b>	CEIE Building

**Finance Committee approval:** **\$70,340.00**

## 5.2 MB & RS Hallway Study Seating

## FASE-02

Seating installation with electric outlets on MB 3<sup>rd</sup> floor and RD 4<sup>th</sup> floor hallway. 11 seats are proposed for MB and 8 seats for RS.

<b>Courses Affected</b>	N/A
<b>Students Affected/Total Enrollment</b>	all students
<b>Total Cost (shipping + HST incl.)</b>	\$20,400.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$13,600.00
<b>Lifespan</b>	15-20 years
<b>Location(s)</b>	MB near 325; RS 4 <sup>th</sup> floor

**Finance Committee approval:** **\$0**

## 6.1 Common Room Refurbishment And New Furniture CIV-01

Refurbishments for common room for informal group work and a place to relax. Plans on using common room to host leadership development and networking events. Furniture includes a sectional couch, a couch set, and 2 tables.

<b>Courses Affected</b>	N/A
<b>Students Affected/Total Enrollment</b>	500
<b>Total Cost (shipping + HST incl.)</b>	\$6,749.49
<b>Net Requested amount (shipping +HST incl.)</b>	\$4,499.66
<b>Lifespan</b>	Unspecified
<b>Location(s)</b>	CIV Undergrad Common Room

**Finance Committee approval:** \$3,982.00

## 6.2 Portable Laser Particles

## CIV-02

Portable Laser Particle Counters which can measure the indoor and outdoor air quality. It will primarily be used for a sustainable buildings lab as well as in ESP and DEEP. 20 units will be purchased.

<b>Courses Affected</b>	CIV 536/576 APS 111
<b>Students Affected/Total Enrollment</b>	40-50
<b>Total Cost (shipping + HST incl.)</b>	\$11,542.50
<b>Net Requested amount (shipping +HST incl.)</b>	\$7,695.00
<b>Lifespan</b>	10 years
<b>Location(s)</b>	portable

**Finance Committee approval:** **\$7,695.00**

## 6.3 In-Class Demonstration Units

## CIV-03

Demonstration units for structural responses of static and dynamic loads. A reconfigurable structures set and a portable shake table will be purchased. The equipment will be available outside class hours for clubs and students to run tests.

<b>Courses Affected</b>	CIV 214/515/519
<b>Students Affected/Total Enrollment</b>	230
<b>Total Cost (shipping + HST incl.)</b>	\$27,184.00
<b>Net Requested amount (shipping +HST incl.)</b>	\$18,122.67
<b>Lifespan</b>	Unspecified
<b>Location(s)</b>	Professor Kwon's office during term Structure's lab during summer

**Finance Committee approval:**

**\$18,122.67**

## 6.4 MB 4th Floor Computer Lab

## CIV-04

Of the ~100 ECF workstations in MB402 roughly 64 are over 6 years old and are frequently failing. Proposal for purchasing 32 computers this year with plans to replace the other 32 next year.

<b>Courses Affected</b>	CIV 235/498/549 MIN 225/466/467/470
<b>Students Affected/Total Enrollment</b>	470
<b>Total Cost (shipping + HST incl.)</b>	\$48,045.07
<b>Net Requested amount (shipping +HST incl.)</b>	\$32,030.05
<b>Lifespan</b>	5 years
<b>Location(s)</b>	MB 400/402

**Finance Committee approval:** **\$32,030.05**