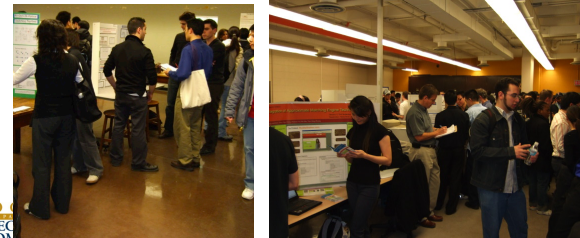
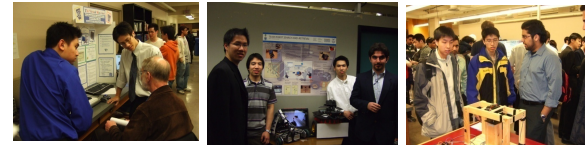


ECE496 – Design Project Information & Sign-up Session

Khoman Phang
Thursday, February 10, 2011

ECE Design Fair (Mar. 29-Apr 1, 2011)

Design Centre (SFB520), Power Lab GB040 & Bahen Atrium



Outline

- Course Description
- Course Deliverables & Deadlines
- Support Resources
- Design Process
- Suggestions for the Summer
- Signing up for a project
- Question and Answer
- “Meet and Greet”

Course Description

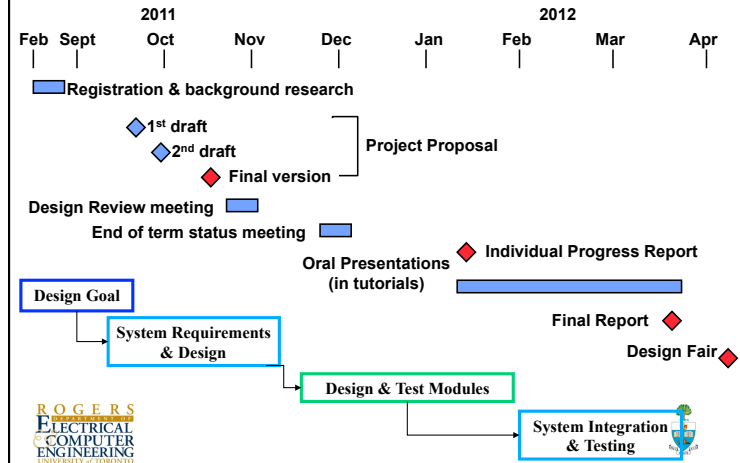
- A full-year umbrella course for all fourth-year design projects. Full course weight for 2 terms.
- Propose a project and carry it out to completion.
- Teams of 2 to 4 students
- Goals are to help students to:
 1. Integrate their technical knowledge.
 2. Communicate their ideas and work.
 3. Develop team work and project management skills.
 4. Gain practical experience in specific fields.

Group Discussion

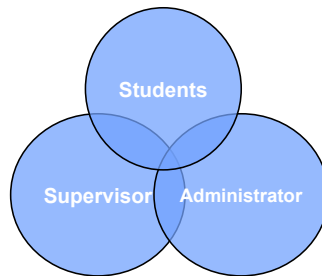
- By yourself, think of a possible project and identify one significant aspect of it
- In a group of 3
 - Pick one of your projects
 - How would you sell it to a sponsor/client?
 - What would your final demonstration look like?



ECE496 Roadmap, Milestones & Deliverables



Your Supervisor and Administrator



•The 'expert client'
•Defining the problem
•Getting the technical details 'right'

• Marking consistency
• Engineering design & project planning
• Effective technical communication

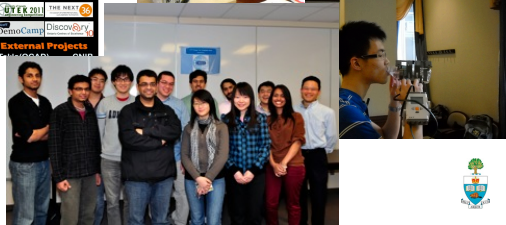
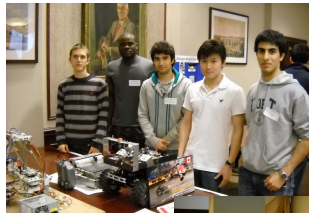


Support Resources – for now ...

- 2011-2012 ECE496 website: <https://internal.ece.toronto.edu/ece496.1112>
- Your supervisor (once you've signed up for a project)
- The Supervisor's Almanac
- The Design Centre (SFB520)
- Friends of Design Network <https://sites.google.com/site/utfriendsofdesign>
- ECE496 Website via UofT Portal:
 1. Log-in to UofT portal. You will need your utoid and password.
 2. On the main portal page, click on the 'Community' tab at the upper right, then look for the "Organization Search" box on the left side. Search for 'ECE496'.
 3. The entry 'ECE496-SUMMER' should come up. Click on the "Enroll" button on the right side. The organization should then be available to you off the Portal in the future when you click the "My Page" tab at the upper right.



Friends of Design <https://sites.google.com/site/utfriendsofdesign>



Support Resources – for September

All of the previous plus:

- Your administrator
- Engineering Communication Program (SFB670)
- Project funding (more later)

Supervisor's Almanac

- Website: under 'Supervisors' or URL
<https://internal.ece.toronto.edu/ece496.1112/UpdateYearly/Almanac.pdf>
- Useful for keeping track of dates and design process



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Design Centre



- Sandford Fleming, room B520
- Borrow equipment, computers, lockers, PCB CAD tools, soldering station and microscope, wireless transceivers, etc.

Funding

First level of funding comes from you: \$100 per student on the team

Example: Project cost is \$600. Project has 4 team members:

4x \$100 = \$400 handled by team members

Team can then seek support for remaining \$200

■ Funding sources include

- Design Project Fund,
- OCE Connections,
- Orbis software design grants,
- CNIB



Funding Requests

Funding from industrial sponsors are the most attractive

- a six-fold increase in cash contributions:

Example:

Cash and in-kind contributions from company (e.g. \$100 cash + \$100 in tech support = \$200)

Matched by UofT/Design Centre (add \$200)

Matched by OCE (add \$200)

Effective support for project = \$600 (plus student contributions)



Funding from industrial sponsors (cont)

- Support letters required from sponsor. Samples posted.
- Must have a cash component. In-kind contributions cannot exceed cash portion.
- Intended for purchases of materials, 'components'(e.g. wireless transceiver), contract services, even travel expenses, but not for big capital purchases (e.g. PC's, oscilloscopes)
- Details on website under 'Students' -> 'Budget & Funding'



Awards

- ALOHA Award (\$10,000)
- Gordon E. Slemon Design Award (\$1k)
- Centennial Thesis Awards (2)
- Certificates for the top projects of the year

New prizes:

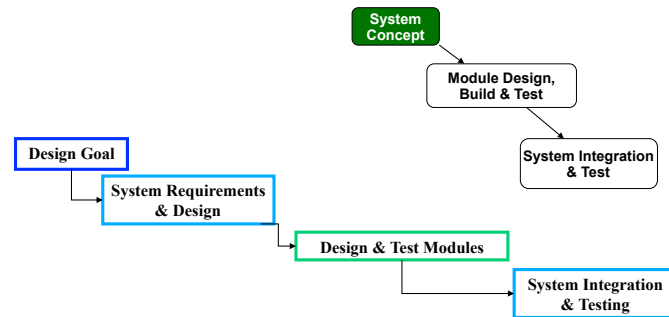
- Orbis Prize in Software Design (\$4k & \$1k)
- CNIB Hochhausen Prize for Excellence in Accessible Design for the Blind (\$1.5k)
- TI Analog University Design Contest (\$1.5k & \$500)

...see Students -> Awards for more information

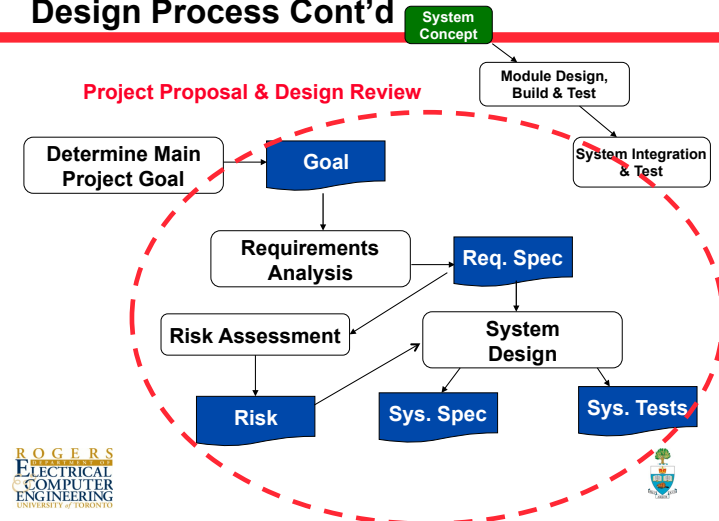


The Design Process: an Overview

- Provides a road map from Start-to-Finish

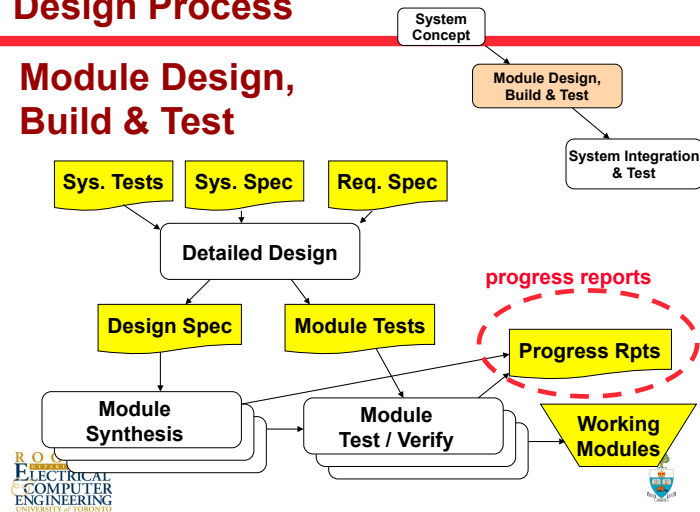


Design Process Cont'd



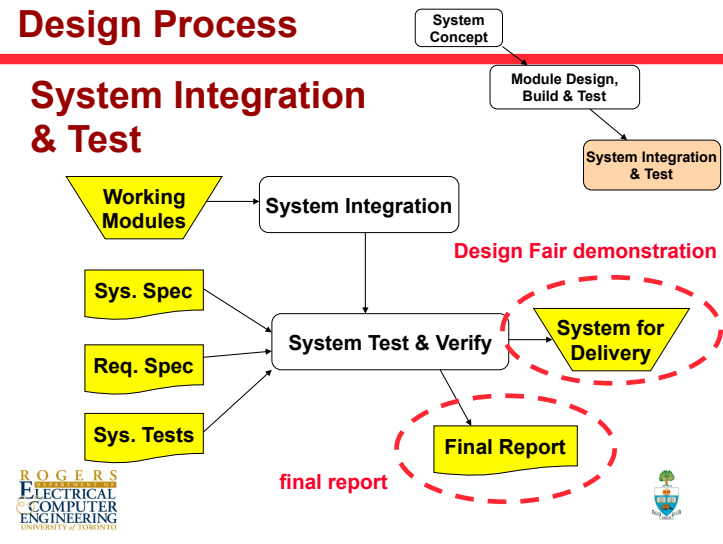
Design Process

Module Design, Build & Test



Design Process

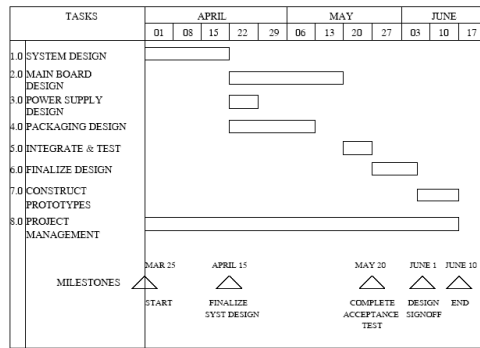
System Integration & Test



Design Process

Managing your project:

Develop a work plan and track each team member's progress



Suggestions for the summer

- Start thinking about your project **now**.
- Sign up for a project **before** the end of the semester.

Why? Since you need to:

- Find a supervisor & a project that interests you before they are taken. Note: supervisors only need to take 6 students.
- Form a team of people whom you are comfortable to work with.
- Start research and explore potential solutions.
- Buy time for your school year.
- Advice from past students** – basically get started over the summer and make good progress while other courses are light



Finding a Partner

- "Meet and Greet" after tonight's lecture
- Discussion board on ECE496 Blackboard site and Facebook
- List of available students on website under 'Registration' -> 'Need a partner/project?':

ECE496 Team and Project Search List					
Last Updated: Thursday, Feb. 12, 2009					
Students still looking for a group and/or project					
Provide below (or e-mail to ask496@eceg.utoronto.ca) your contact information, areas of interest, potential projects, and supervisors					
First Name	Last Name	Student E-mail	Partner(s)?	Looking for a project?	Looking for Areas of Interest
John	Doe	john.doe@utoronto.ca	Yes	Yes	IC design, FPGA, software, biomedical, networks
					Potential projects, supervisors
					Electrode Array Design, Genov



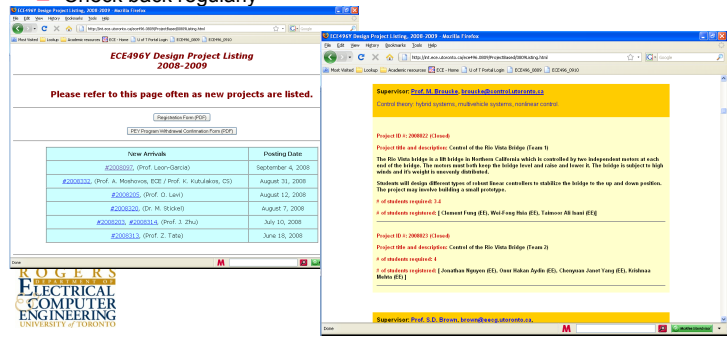
Finding a Project

- Proposed by students, supervisors, or industry
- Types of projects seen in the past:
 - Projects that implement, extend or combine technologies.
 - Projects that are in the supervisor's research area, some of which involve actual research.
 - Interdisciplinary projects (sometimes with students from other departments).
 - Competition projects.
 - Industrial-based projects.



Project Listings Page

- Available Projects are posted on the Projects Listing page on ECE496 website under 'Registration'
- Projects provided by professors, and students (email your postings to ask496@eecg.utoronto.ca)
- Check back regularly



Sign Up Process Part 1: team & supervisor

- Find a project, find a supervisor, form a team.
- The supervisor must approve the project and the project must still be open if you select one from the website!

Sign Up Process: Part 2 - Register

- Kelly Chan handles project registration (email: ask496@eecg.utoronto.ca, office: Annex EA316)
- Have supervisor send an acceptance email to Kelly. This reserves the project for you
- Complete and sign the registration form and email a scanned copy to Kelly
- If the forms are complete and the students are eligible to sign up, your project will be registered. This closes the project on the website.

Until all three steps are complete you are not guaranteed the project!!

BONUS: Early Registration bonus mark if you sign up by early August!

Notes about the signup process

- For students enrolled in **PEY for 2011-2012**:
 - Even if you do not have a job, you may **NOT** register for a '496 project. You must withdraw formally from **PEY** before registering. Students who do not withdraw from **PEY** must wait until Sept.
 - Teams with members enrolled in **PEY for 2011-2012** may register without the **PEY** student if there are at least two students and with the approval of the supervisor
- Once you register for a project, you may not change.
 - Note:** Most supervisors allow some changes in the project that is allowed.

Lastly: What will this do for me??

- Employers focus on this work during job interviews.
- Supervisor and administrators know about you for references.
- Grad work might follow from this work.
- It is a chance to be creative about something you select.
- It helps to prepare you for the workplace...



Questions and Answers



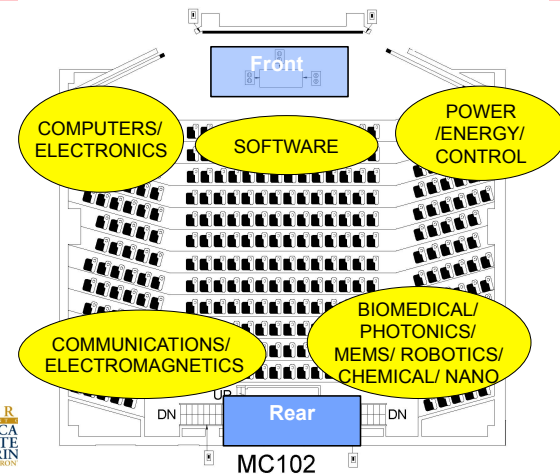
Sign-up: Finding Partners and Projects

- Fill out form or e-mail to ask496@eecg.utoronto.ca your contact information, areas of interest, potential projects, and supervisors

ECEB6 Team and Project Search List						
Last Updated: Thursday, Feb. 12, 2009						
Students still looking for a group and/or project						
Provide below (or email to ask496@eecg.utoronto.ca) your contact information, areas of interest, potential projects, and supervisors						
First Name	Last Name	Student E-mail	Looking for Partner(s)?	Looking for a project?	Areas of Interest	Potential projects, supervisors
John	Doe	john.doe@utoronto.ca	Yes	Yes	C design, FPGA, software, biomedical, networks	Electrode Array Design, Genov



'Meet and Greet' in MC102



List of Potential Supervisors

BIOMEDICAL/ PHOTONICS/ MEMS/ ROBOTICS/ CHEMICAL/ NANO	Bardakjian/ Truong/ Wong/ Helmy/ Qian/ Sun/ Ruda/ Emami/
COMMUNICATIONS/ ELECTROMAGNETICS	Hatzinakos/ Jacobsen/ Kschischang/ Lim/ Plataniotis/ Eleftheriades/ Hum/ Mojahedi/ Sarris
SOFTWARE	Abdelrahman/ Amza/ Goel/ Li/ Lie/ Steffan/ Stumm
COMPUTERS/ ELECTRONICS	Anderson/ Brown/ Chow/ Moshovos/ Rose/ Najm/ Veneris/ Zhu Genov/ Gulak/ Ng/ Sheikholeslami
POWER/ENERGY/ CONTROL	Dawson/ Iravani/ Lehn/ Prodic Maggiore/ Francis

ECE496 Website Site Map

■ <https://internal.ece.toronto.edu/ece496.1112>

ECE496 Website – Site Map

Introduction
 * Course Description
 * Project Categories
 * Course Administrators

Students

* Schedules and Deadlines
 * Grading
 * Course Deliverables
 * Deliverables Summary
 * Project Proposal
 * Design Review
 * Individual Progress Reports
 * Oral Presentations
 * Final Report
 * Design Fair
 * Report Submission
 * Budgets & Funding
 * Awards
 * Student Responsibilities
 * Personal Conflicts
 * Intellectual Property
 * Health and Safety
 * ECE Design Centre
 * Other Resources

Supervisors

* Supervisor's Almanac

Sponsors

* Sponsors

Registration

* Project Listing
 * Sign-Up Procedure
 * Registration form
 * PEV withdrawal form
 * Need a partner?
 * What Section am I in?



ECE496 Course Summary

2011-2012

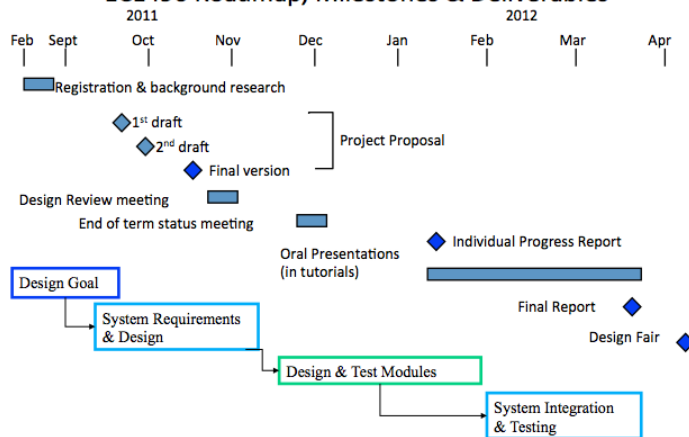
ECE496Y is a full-year umbrella course for all fourth-year design projects. It is a requirement for all fourth-year electrical and computer engineering students, allowing them to integrate the knowledge acquired over the first three years of study in the context of project proposed either by the student or by a supervisor. For the first time in your undergraduate program, you are required to propose a project and carry it out to completion. Teams with a minimum of two students and a maximum of four will be working on the common project but *individual team members will be required to take on responsibilities for specific work* for which each will be held accountable. That is each person will receive an individual mark for his/her work performed in the project.

Course Roadmap, Milestones, & Deliverables

In total, there are 5 deliverables that count toward the final grade:

- Group Project Proposal - A initial plan for your work
- Group Design Review meeting – a meeting to discuss your proposal
- Individual Progress Report – an interim report on your progress to date
- Group Oral Presentation - An oral presentation of the project and its status
- Group Design Fair Presentation - Poster presentation and demonstration
- Group Final Report - A final report on the project

ECE496 Roadmap, Milestones & Deliverables



Support Resources:

- 2011-2012 ECE496 website: <https://internal.ece.toronto.edu/ece496.1112>
- Your Supervisor
- Your Administrator
- The Design Centre (SFB520)
- Engineering Communication Program (SFB670)
- Funding sources including the Design Project Fund and OCE Connections
- UofT Portal: 'ECE496 Summer' Organization site, and course website (available only starting in the fall of 2011)
- Facebook Organization: 'UofT ECE496 Design Projects'
- The Friends of Design: <https://sites.google.com/site/utfriendsofdesign>

References:

- Design Project Supervisor's Almanac – use to keep track of dates and design process. Available at <https://internal.ece.toronto.edu/ece496.1112/UpdateYearly/Almanac.pdf>
- J.E. Salt and R. Rothery, Design for Electrical and Computer Engineering, Wiley, 2002.
 - Available at U of T bookstore
 - Copies available from sign out desk in Engineering Library for 2-hour loan. Call number TK7867 S235.

ECE496 on UofT Portal (Blackboard)

The actual course website will not be open until ROSI is ready in the fall, but in the meantime there is an "organization" in Blackboard with a discussion board which can be used to find partners, a link to the course information menu with the list of projects and a copy of the ECE298 systems design notes.

To get to the site:

1. Log-in to UofT portal. You will need your utorid and password.
2. On the main portal page, click on the 'Community' tab at the upper right, then look for the "Organization Search" box on the left side. Search for 'ECE496'.
3. The entry 'ECE496-SUMMER' should come up. Click on the "Enroll" button on the right side. Enter the access code 'capstone' (no quotes) and click the 'submit' button (Please do not distribute this access code.) The organization should then be available to you in the future when you click the "My Page" tab at the upper right

Finding a Project

Your first responsibility in this course is to sign up for a project. You should do that as early as possible. There are different types of projects:

- Proposed by students, supervisors, or industry
- Types of projects seen in the past:
 - Projects that implement, extend or combine technologies.
 - Projects that are in the supervisor's research area, some of which involve actual research.
 - Interdisciplinary projects (sometimes with students from other departments).
 - Competition projects.
 - Industrial-based projects.
- Available Projects are posted on the Projects Listing page on ECE496 website under 'Registration'

Tip: Form your team before approaching your supervisor. Experience has shown that projects close earlier if the supervisor is approached by a group rather than by an individual. If you sign up as an individual rather than as a group, you will delay the start of your project as you have to wait for a partner. Returning PEY students need to be aware of this issue and make contact with other potential group members before contacting the professor. You should use Facebook or the Bulletin Board on Blackboard to join a group or get others to join yours.

Sign Up Procedure:

- Find a project, find a supervisor, form a team. The supervisor must approve the project and the project must still be open if you select one from the website!
- Kelly Chan handles project registration (email: ask496@eecg.utoronto.ca, office: Annex EA316)
- Further detailed instructions are provided on the ECE496 website under 'Registration' -> 'Sign-up Procedure'

NOTES:

- If you are enrolled for PEY, even if you do not have a job, you may **NOT** register for a '496 project. You must withdraw formally from PEY before registering.
- Once you register, you may not change projects.
 - **Note:** Most supervisors allow some flexibility in the proposed project

Budgets

Each student is required to submit a budget and to cover the first \$100 of project expenses. For example, a 3-person team would be required to cover \$300. A projected budget in excess of \$100/student should be discussed with the supervisor and approved by the course coordinator at the time the proposal is submitted.

Additional Funding support is available. Refer to the ECE496 website under 'Students' -> 'Budget & Funding'

Intellectual Property Rights

In general, intellectual property (IP) that is created by a student, would be governed by the University's Inventions Policy, which allows the student to take ownership in consideration for a 25% share of commercial revenue to the University. However, students can retain ownership of the copyright and intellectual property (IP) arising from their project if no University facilities or resources were used to carry out their project. If a participating or contributing company wishes the student or supervisor to sign any agreement, i.e. confidentiality, employee waiver, etc. then it should first be vetted through the Innovations and Partnerships Office (IPO) at the University of Toronto. It is especially important that the students understand this if they are working on site at a company. Intellectual Property contributed by the Company remains the company's.