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# MEC222: Engineering Graphical Communications

This is the home page for materials by [Dr. Salustri](#) for MEC222.  
You should bookmark <https://deseng.ryerson.ca/mec222> for easier access.

Announcements and grades will be made available through [D2L](#).  
A Google Group will be used for course related discussions, Q&A, etc.

## Instructors

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I do not carry such information in my mind since it is readily available in books. The value of a college education is not the learning of many facts but the training of the mind to think.*Albert Einstein, 1879-1955*

Education is what survives when what has been learnt has been forgotten.*B.F. Skinner, 1904-1990*

I am not different from you. I am different *like you.unknown*

## Salustri's Lectures

Sections 8-14: Mondays, 14:00-1600, on Zoom.

## Salustri's Labs

Section	Day / Time	Room	Teaching Assistant
8	Friday, 13:00-15:00	CLOSED	
9	Wednesday, 08:00-10:00	Zoom	<a href="#">Samantha Mulley</a>
10	Wednesday, 08:00-10:00	Zoom	<a href="#">Vincenzo Filice</a>
11	Wednesday, 10:00-12:00	Zoom	<a href="#">Robert Plant</a>
12	Wednesday, 10:00-12:00	Zoom	<a href="#">Khajag Papazian</a>
13	Tuesday, 13:00-15:00	Zoom	<a href="#">Christopher Welsford</a>
14	Tuesday, 13:00-15:00	Zoom	<a href="#">Jessica Principe</a>

## Lecture notes

Lecture slides will be available ASAP before lectures.

Zoom lectures will be recorded and made available to students within a few days of each lecture.

All students **must** use their Ryerson accounts to access recorded materials.

**All lecture slides are available [here](#).**

**During the pandemic**, lecture recordings will be made, and stored [here](#).  
Access to the recordings will persist up to but *excluding* the day of the final exa.

**Rules and information about D2L quizzes (for midterms and exams) is available [here](#).**

These video tutorials are old, but still generally accurate. There are **many** YouTube videos explaining various current or recent features of Solidworks.

## Manual sketching videos

Several “how to” videos relating to manual sketching can be found [here](#).

These videos [Dr. Pouria Tavakkoli Avval](#). Dr. Avval has granted MIE a non-exclusive license to use these videos in teaching MEC222.

The department is grateful to Dr. Avval for his dedication and effort.

You may not download copies of these videos without his express permission.

## Solidworks tutorial videos

Parts

[part 1](#), [part 2](#).

Assemblies

[part 1](#), [part 2](#).

Intro to SW

[part 1](#), [part 2](#), [part 3](#), [part 4](#).

Drawings

[part 1](#), [part 2](#), [part 3](#).

## See also

- [PDF of presentation slides by Karl Schumacher \(2018\)](#) on the importance of manual drawing.
- [Online supplemental material for the textbook](#)
- [A brief history of computer graphics](#)
- [Personal productivity for students](#): a collection of tips to help students manage your work.
- [Don't bother begging for marks.](#)

## What students have said

Below are comments from actual students about this course, drawn from comments submitted with the Faculty Course Survey some time since I arrived at Ryerson in 1999. I have provided commentary as required.

Student comments are in boxes; instructor remarks are in plain text below each box.

Besides one factor, I found both the course and the prof to be great despite what others told me. Dr. Salustri is a chill prof who just speaks his mind like everyone else, he teaches fine, engages with students;(I don't have anything bad to say about him). When it comes to course, everything is good, but i have one suggestion. When it comes to these assignments/labs, it would be nice to have some sort of marking criteria/rubric. It makes things easier for us since we can check off everything we have done/what we need to get done, rather than guessing how much our mistakes cost us.

Thanks for the kind words.

The problem with rubrics is that too many students work to the rubric rather than focusing on learning the material. We've tried it, and it leads to more trouble than its worth for everyone. All you have to do is work to improve your skills; if you do that, then it'll all work out.

There should be lectures based off solidworks fundamentals to help us understand the software.

You mean like they teach MS Word in the English department?

Oh wait, they don't. In English, they teach you how to write, not what keys to push. In this course, we teach how to draw, not what keys to push. See the similarity?

a very rude and condescending professor

Why, thank you! Actually, if you think *I'm* rude and condescending, wait till you get out into industry!

Extremely effective lectures and studios helped me learn the content very easily. Both my TA and Professor were both excellent. The lectures in particular are very enjoyable with Salustri which helped me pay attention. The projects were a bit of a mess, but other than that the course was amazing.

You clearly need to talk to the student who wrote the previous comment. Didn't you know I'm rude and condescending?

I recognize the issues with the projects. This was the first year we ran them and there's always problems the first time you do something new in a class this big. This is why we dislike changing the course too much at once - disaster will strike. We're working hard to make sure these problems are eliminated by next year.

The mailing list is intimidating because everyone else can see your correspondence. Professor can be a bit hard on students via the mailing list which makes me not want to use the mailing list to ask questions.

Exactly. While it's not explicitly in the curriculum, we're not only helping you learn how to *do* engineering, but also how to *be* an engineer. One aspect of an "engineer's character", if you will, is to have a tough skin - to have what some people absurdly call [grit](#).

And though I may *seem* hard on you, it's only to expose you to what you'll have to deal with in "real life" when you graduate.

Remember: no matter how hard or rude or whatever, **I will go to the wall** to defend your right to learn here.

great enthusiasm love it, wish you did some in class drawings live. goatee...

Capitalization and punctuation aside, I do take your point about more in-class drawings. I'm working on that. Sometimes, the technology gets in the way. Sometimes there are so many good but unexpected questions that I don't get a chance to draw as much as I'd like to.

...and yes, it's a goatee....

Here is the thing Salustri is a fun Teacher, but should be teaching MEC, he should be teaching philosophy. Salustri needs MORE DETAILED NOTE. LIKE COMPRESS 60 PAGE OF INTO LIKE ATLEAST 30 SLIDES. BECAUSE WHILE WE WILL TAKE NOTES, THE NOTES AND YOU SPEAKING COVERS NOTHING. DIMENSIONING RULES = NONE SECTION RULES == NICELY PUT, BUT NEEDS TO BE MORE SPECIFIC, HALF THE TIME I HAVE NO CLUE WHAT SECTION VIEW TO USE WHERE AND HERES THE THING SALUSTRI MAKES YOU FEEL LIKE YOU KNOW THE SHIT. THE LECTURE SLIDES MAKE YOU FEEL LIKE YOU KNOW THE SHIT. THE EXAMINATION REMONDS YOU, YOU HAVE BEEN ROBBED. EITHER GIVE US A LOT MORE INFO ON THE TOPICS. OR QUIT AND LEARN SOLIDWORKS. THAT'S 48% OF OUR MARKS, AUTO CAD IS A HUGE PORTION OF ENGINEERING. DON'T HIRE A TA AND EXPECT HIM TO TEACH US EVERYTHING. THE HELL IS WRONG WITH YOU HOW COULD THEY TEACH US EVERYTHING, WHAT COURSE DOES THAT. THAT BEING SAID GOOD JOB I ENJOYED YOUR CLASS AND IT WAS FUN, BUT IT WILL NOT AND CANNOT GIVE THE IMFORMATION NEED TO SAVE LIVES.



Sorry, but

I liked him as a prof, I think he should have done more examples on tolerances and auxiliary [sic] views, seeing as I found them very difficult in comparison to the other content & I know others did too.

This changes from year to year. Some years, students don't get auxiliary views; other years, they don't get sections. I try to juggle the amount of time spent on each topic, but I just can't predict what each year's class will find particularly challenging.

good teacher, kind of a mean jerk at times, but has his reasons for it, would attend his class again

Only "at times"?

examples in class are hard to see, construction lines are light but they're really tough to make out from the projection.

No one brought this to my attention. I can't fix what I don't know is wrong. I will make the "pencils" I use on my tablet darker next year, though.

Students who have their lab after the lecture have an unfair advantage in the assignments because they have an opportunity to ask and listen to questions regarding the assignment.

Strictly speaking, this doesn't follow, for two important reasons.

1. All homework assignments are made available as of Week 1, so students have plenty of time to ask about assignments in lab or during the instructor's office hours.
2. Material covered in any given assignment was covered in the *previous week's lab*; this is done precisely to ensure that all students have sufficient time to ask questions of clarification.

The instructor is annoying but I liked him

The students are annoying too, but I like them anyways.

Marking hand drawn assignments for neatness while having to use freehand sketching techniques makes getting a decent mark touch for people with bad drawing skills. Being allowed to use straight edges or relaxing visual expectations would be an effective compromise.

This student is missing the point. The point is that (a) the marks are supposed to reflect your capacity, regardless of skill. If you just can't draw, then that is an important aspect of your skill set that employers must be aware of. That doesn't mean you'd be a bad engineer, and no reasonable employer would think that it did.

There are national standards in engineering curricula, set by the [CEAB](#) that govern what an engineering student should know and be able to do by the time they graduate. Our job is to try to help you learn and to assess your abilities at the end of that time. Whether that results in high marks or not is **not** our concern; our concern is to ensure that all graduates will make good engineers.

Great course. Some marking scheme regarding the assignments and midterms would have been

helpful, so that we don't lose [sic] valuable marks and focus on the important details that will be marking.

We're aware of this growing dependency by students on knowing the marking scheme for assignments. We are unconvinced that this is of educational value. On the one hand, there is a body of literature suggesting that students who know the specifics of a grading scheme do better. On the other hand, one can (rather successfully) argue that such students are just "robotically" doing whatever they know is necessary to get a good mark, rather than learning because they have internalized the importance of *knowing it all*. In the 1980s, it was simple: *Here's the textbook. Know it all. Ask the instructor if you don't get it*. This worked extremely well because it showed students what real life is like (self-directed learning), but with a safety net (instructors and TAs). Marks were not lower, bad then, though failure rates were higher. While it's well and good to try to help as many students as possible (and thereby fail fewer students), it is not at all evident that catering to those who cannot self-learn is the best way to do this.

All this notwithstanding, we are making a significant effort to devise a way of communicating expectations on students more clearly and consistently.

Dr. Salustri has interesting stories related to the course that helps maintain the student's interest of the course. He also has a very insightful blog. Great Prof!

[blush] Thank you.

The labs often take days to complete. The lab time allocated is barely enough to finish the solid works portion, often requiring us to come back later to complete it. Then the sketching may take up to an entire day to do on their own. The returned assignments never have any notes or corrections, just removed marks. It is not possible to learn from mistakes if one doesn't know they made them. For example a drawing worth 10 marks is returned with only a 6/10 circled and no other pen marks are made on the page.

There's a few points of interest here.

1. Students are expected to spend at least four hours per week per subject *outside* of lecture and lab. Of course, this is only a guideline, and there will likely be variability from one week to the next.
2. Students have access to the computer labs any time that the building is open, including weekends, and CCS runs a separate lab with 40 seats of solidworks (somewhere in the Library, I think) so there is no reason for a student to claim that they cannot get access to Solidworks.
3. Teaching Assistants **must** provide feedback to students. If they are not providing feedback, then it is up to the student to inform me. I tell the TAs what their duties are and expect them to do it. But I do not have time to keep checking on them. Tell me if you have problems and I will investigate immediately.

It would be nice if there were lecture slides to refer to for certain topics later in the course such as tolerances. Also, assignment 6 was very complex and time consuming.

All material I use in class is taken from the textbook, which is “required.” Therefore, all students already have all the material, overheads, etc. Students also need to be taking notes *during* class - this includes drawings and sketches that I produce on the boards. (Remember that drafting is a subject learned via *practice*, so handing out completed drawings does little good compared to expecting students to draw of their own.) So there is no reason to provide lecture slides.

As far as Assignment 6 goes - yes, it was time-consuming. Again, one learns by practice. Drafting is not easy.

The Midterm was not a fair evaluation of our knowledge as it only tested us on solidworks.

For practical reasons, we cannot run an exam that involves solidworks; so the exam can only be on hand drawing, visualization, etc. The course is supposed to be roughly 50% CAD and 50% drawing; the exam covers drawing and is worth 30% of the final grade, while the two midterms cover solidworks and is also worth 30%. These constitute “supervised work.” The homework (which is generally “unsupervised work”) is roughly half on solidworks and half on drawing. This ensure that the course maintains as closely as possible the 50/50 split between drawing and CAD. Therefore, it is completely fair that the midterms cover only solidworks.

TA wasn't helpful in the course.

Our TA... was amazing.

These two comments are worth putting together because they are comments *about the same TA*.

While I can *request* certain students as TAs, I do not have a say in the final selection. Also, TAs are themselves students and eventually graduate. Sooner or later, I will get “new” TAs. While we do everything we can to ensure the TAs are the best possible choices for this course, we cannot guarantee anything. And even if we could, we would still end up with these kind of subjective evaluations.

What exactly is to be done, for instance, in this particular case? I honestly don't know.

TA... marks hard especially for the test.

Actually, the tests are the *best* and *easiest* items for the TAs to grade. Not only are they usually very short (1 or 2 sheets per student) compared to the homework assignments, but also I provide *much* stricter grading guidelines to the TAs for the tests because (a) they are easier to grade and (b) they are more substantive components of a student's overall evaluation. So the tests are almost always the *best* assessments of your abilities.

That is, it's not that the TAs mark the tests too harshly, but that, if anything, they mark the homework too easily.

...the labs sometimes ask us to implement knowledge that we have not covered during the lectures yet.

That should never happen. As near as I can tell, it hasn't happened. I cannot fix mistakes that I don't know I've made. If this does happen, the student should raise the issue immediately, by emailing the instructor.

...sometimes marks are deducted for the most minor things like putting your name in the wrong box or making one line that has the most minuitive of branches that prevents it from being perfectly straight.

Yes, and this is explained several times during the semester. Besides teaching "book knowledge," we need to teach about the so-called *discipline of engineering*. That is to say, an engineer must exhibit a high degree of self-discipline, because a lack of discipline can lead to harm to, and even death of, users of engineered products. To help you to learn self-discipline, we select tasks that we know that you know how to do - like drawing borders, and putting your name in the "right box" on the drawing. The question is not whether you know how to do these things - you all obviously do know. The question is whether can you discipline yourself to do these things, which may seem trivial and banal, but which in the long run promote an attention to detail that is *essential* for a practicing engineer.

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