ECE516H1 S

Intelligent Image Processing

Winter 2025 Syllabus

## Course Meetings

### ECE516H1 S

| **Section** | **Day & Time** | **Delivery Mode & Location** |
| --- | --- | --- |
| **LEC0101** | Tuesday, 1:00 PM - 2:00 PM Wednesday, 1:00 PM - 2:00 PM Friday, 1:00 PM - 2:00 PM | In Person: BA 3165 In Person: BA 3165 In Person: BA 3165 |
| **PRA0101** | Friday, 9:00 AM - 12:00 PM | In Person: BA 3165 |

Refer to ACORN for the most up-to-date information about the location of the course meetings.

Labs do not start until January 19th.  For schedule, see http://wearcam.org/ece516/labs.htm

## Course Contacts

**Course Website:** <http://wearcam.org/ece516/>

**Instructor:** Prof. Steve Mann

**Email:** [mann@eecg.utoronto.ca](mailto:mann@eecg.utoronto.ca)

**Instructor:** Steve Mann

**Email:** [mann@eecg.utoronto.ca](mailto:mann@eecg.utoronto.ca)

**Office Hours and Location:** Each hour immediately after class (3 hours per week), plus additional office hours can be scheduled upon request.

## Course Overview

This course provides the student with the fundamental knowledge needed in the rapidly growing field of Personal Cybernetics, including "Wearable Computing", "Personal Technologies", "Human Computer Interaction (HCI)," "Mobile Multimedia," "Augmented Reality," "Mediated Reality," CyborgLogging," and the merging of communications devices such as portable telephones with computational and imaging devices. The focus is on fundamental aspects and new inventions for human-computer interaction. Topics to be covered include: mediated reality, Personal Safety Devices, lifelong personal video capture, the Eye Tap principle, collinearity criterion, comparametric equations, photoquantigraphic imaging, lightvector spaces, anti-homomorphic imaging, application of personal imaging to the visual arts, and algebraic projective geometry.

Please see syllabus, [http://wearcam.org/ece516/ECE516syllabus2025.pdf](http://wearcam.org/ece516/ECE516syllabus2023.pdf)

and course website, http://wearcam.org/ece516/

### Course Learning Outcomes

Please see syllabus, [http://wearcam.org/ece516/ECE516syllabus2025.pdf](http://wearcam.org/ece516/ECE516syllabus2023.pdf)

and course website, http://wearcam.org/ece516/

**Credit Value:** 0.5

**Graduate Attributes:**

* 3B. Investigation: Demonstrate the ability to devise and execute a plan to solve a problem. [Applied]
* 3C. Investigation: Demonstrate the ability to use critical analysis to reach valid conclusions supported by the results of the plan. [Applied]
* 5A. Use of Engineering Tools: Demonstrate ability to use fundamental modern techniques, resources and engineering tools. [Applied]
* 5B. Use of Engineering Tools: Demonstrate ability to use discipline specific techniques, resources and engineering tools. [Applied]
* 5C. Use of Engineering Tools: Show recognition of limitations of the tools use. [Applied]

## Course Materials

Textbook plus a few small miscellaneous components as outlined on the course website.

The textbook is:

@BOOK{intelligentimageprocessing,

author = "Steve Mann",

title = "Intelligent Image Processing",

publisher = "John Wiley and Sons",

pages = "384",

month = "November 2",

year = "2001",

note = "ISBN: 0-471-40637-6",

}

## Marking Scheme

| **Assessment** | **Percent** | **Details** | **Due Date** |
| --- | --- | --- | --- |
| **Labs and general participation** | 65% | Please see syllabus, http://wearcam.org/ece516/ECE516syllabus2023.pdf and course website, http://wearcam.org/ece516/ | No Specific Date |
| **Final Assessment** | 35% | Please see syllabus, http://wearcam.org/ece516/ECE516syllabus2023.pdf and course website, http://wearcam.org/ece516/ | Final Exam Period |

Please see syllabus, http://wearcam.org/ece516/ECE516syllabus2025.pdf  
and course website, http://wearcam.org/ece516/

### Late Assessment Submissions Policy

Please see syllabus, http://wearcam.org/ece516/ECE516syllabus2025.pdf and course website, http://wearcam.org/ece516/

## Policies & Statements

### University Land Acknowledgement

I wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

Learn more about Canada’s relationship with Indigenous Peoples [here.](https://www.engineering.utoronto.ca/about/equity-diversity-and-inclusion/indigenous-cultural-competency-toolkit/)

**Indigenous Students’ Supports**

If you are an Indigenous engineering student, you are invited to join a private Discord channel to meet other Indigenous students, professors, and staff, chat about scholarships, awards, work opportunities, Indigenous-related events, and receive mentorship. Email [Professor Bazylak](http://invalid.uri) if you are interested.

Indigenous students at U of T are also invited to visit Nations House’s (FNH) Indigenous Student Services for culturally relevant programs and services. If you want more information on how to apply for Indigenous specific funding opportunities, cultural programs, traditional medicines, academic support, monthly social events or receive the weekly newsletter, go to the FNH [website](https://studentlife.utoronto.ca/department/first-nations-house/), [email](http://invalid.uri) or follow FNH on social media: [Facebook](https://www.facebook.com/FirstNationsHouseUofT), [Instagram](https://www.instagram.com/firstnationshouse/), or [TikTok](https://www.tiktok.com/@first.nations.house). A full event calendar is on the CLNX platform. Check CLNX often to see what new events are added!

### Wellness and Mental Health Support

Your personal wellness and mental health are important. The University of Toronto and the Faculty of Applied Science & Engineering offer a wide range of free and confidential services that can support your well-being.   
  
As a U of T Engineering student, you have a Departmental [Undergraduate Advisor](http://uoft.me/engadvisors) or a Departmental [Graduate Administrator](https://gradstudies.engineering.utoronto.ca/grad-admins/) who can support you by advising on personal matters that impact your academics. Other resources that you may find helpful are listed on the [U of T Engineering Mental Health & Wellness webpage](http://www.uofteng.ca/mentalhealth), and a small selection are also included here:

* [U of T Engineering’s Student & Community Wellness Coordinator](https://www.engineering.utoronto.ca/mental-health-wellness/" \l "SCWC)
* [Health & Wellness](https://studentlife.utoronto.ca/department/health-wellness/) and the [On-Location Engineering Wellness Counsellor](https://undergrad.engineering.utoronto.ca/advising-and-wellness/health-wellness/)
* [Health & Wellness Peer Support Program](https://studentlife.utoronto.ca/service/peer-support/)
* [Accessibility Services](https://studentlife.utoronto.ca/department/accessibility-services) & the [On-Location Advisor](https://undergrad.engineering.utoronto.ca/advising-and-wellness/accessibility-services/)
* [Graduate Engineering Council of Students’ Mental Wellness Commission](https://gecos.sa.utoronto.ca/commissions/)
* [SKULE™ Mental Wellness](https://wellness.skule.ca/)
* [U of T Engineering’s Learning Strategist](https://undergrad.engineering.utoronto.ca/advising-and-wellness/learning-skills-strategist/) and [Centre for Learning Strategy Support](https://studentlife.utoronto.ca/department/centre-for-learning-strategy-support/)
* [Registrar’s Office](https://undergrad.engineering.utoronto.ca/academics-registration/registrars-office-2/about-the-registrars-office/) and [Scholarships & Financial Aid Office & Advisor](https://undergrad.engineering.utoronto.ca/fees-financial-aid/u-of-t-engineering-scholarships-financial-aid-office/)

We encourage you to access these resources as soon as you feel you need support; no issue is too small. You may reach out to the counsellors at [U of T Telus Health Student Support](https://uoft.me/THSS) for 24/7 free and confidential counselling support.   
  
If you find yourself feeling distressed and in need of more immediate support visit [uoft.me/feelingdistressed](https://studentlife.utoronto.ca/task/support-when-you-feel-distressed/) or U of T Engineering’s [Urgent Support – Talk to Someone Right Now](https://www.engineering.utoronto.ca/talk-to-someone-right-now/).

### Accommodations

The University of Toronto supports accommodations for students with diverse learning needs, which may be associated with mental health conditions, learning disabilities, autism spectrum, ADHD, mobility impairments, functional/fine motor impairments, concussion or head injury, visual impairments, chronic health conditions, addictions, D/deaf, deafened or hard of hearing, communication disorders and/or temporary disabilities, such as fractures and severe sprains, or recovery from an operation.   
  
If you have a learning need requiring an accommodation the University of Toronto recommends that students [register with Accessibility Services](https://studentlife.utoronto.ca/service/accessibility-services-registration-and-documentation-requirements/) as soon as possible.   
  
We know that many students may be hesitant to reach out to Accessibility Services for accommodations. The process of accommodation is private; we will not share details of your needs or condition with any instructor.   
  
If you feel hesitant to register with us, we encourage you to reach out for further information and resources on how we can support. It may feel difficult to ask for help, but it can make all the difference during your time here.   
  
Phone: 416-978-8060   
Email: [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca)

### Equity, Diversity and Inclusion

**Looking for community? Feeling isolated? Not being understood or heard?**  
  
**You are not alone.** You can talk to anyone in the Faculty that you feel comfortable approaching, anytime – professors, instructors, teaching assistants, [first-year](https://undergrad.engineering.utoronto.ca/contact/" \l "first-year-team) or [upper years](https://undergrad.engineering.utoronto.ca/contact/" \l "upper-year-academic-advisors) academic advisors, student leaders or the [Assistant Dean of Diversity, Inclusion and Professionalism](mailto:marisa.sterling@utoronto.ca).  
  
**You belong here.** In this class, the participation and perspectives of everyone is invited and encouraged. The broad range of identities and the intersections of those identities are valued and create an inclusive team environment that will help you achieve academic success. You can read the evidence for this approach [here](https://www.weforum.org/agenda/2019/04/business-case-for-diversity-in-the-workplace/).  
  
**You have rights.** The [University Code of Student Conduct](https://governingcouncil.utoronto.ca/secretariat/policies/code-student-conduct-december-13-2019) and the [Ontario Human Rights Code](http://www.ohrc.on.ca/en/students’-handouts/fact-sheet-1-ontario-human-rights-code) protect you against all forms of harassment or discrimination, including but not limited to acts of racism, sexism, Islamophobia, antisemitism, homophobia, transphobia, ableism, classism and ageism. Engineering denounces unprofessionalism or intolerance in language, actions or interactions, in person or online, on- or off-campus. Engineering takes these concerns extremely seriously and you can confidentially disclose directly to the Assistant Dean for help [here](http://invalid.uri).  
  
Resource List:

* [Engineering Equity, Diversity & Inclusion Groups, Initiatives & Student Resources](http://www.uofteng.ca/edi)
* [Engineering Positive Space Resources](https://www.engineering.utoronto.ca/about/equity-diversity-and-inclusion/engineering-positive-space/)
* Request a religious-based accommodation [here](https://studentlife.utoronto.ca/service/religious-accommodation-support/)
* Email Marisa Sterling, P.Eng, the Assistant Dean, Diversity, Inclusion & Professionalism [here](http://invalid.uri)
* Make a confidential disclosure of harassment, discrimination or unprofessionalism [here](http://www.uofteng.ca/disclosure) or email [engineering@utoronto.ca](mailto:disclosure.engineering@utoronto.ca) or call 416.946.3986
* Email the Engineering Society Equity & Inclusivity Director [here](mailto:equity@g.skule.ca)
* [U of T Equity Offices & First Nations House Resources](https://hrandequity.utoronto.ca/inclusion/equity-offices/)

### Academic Integrity

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the [U of T writing support website](http://www.writing.utoronto.ca/). Consult the [Code of Behaviour on Academic Matters](http://www.governingcouncil.utoronto.ca/policies/behaveac.htm) for a complete outline of the University's policy and expectations. For more information, please see the [U of T Academic Integrity website](http://academicintegrity.utoronto.ca/).