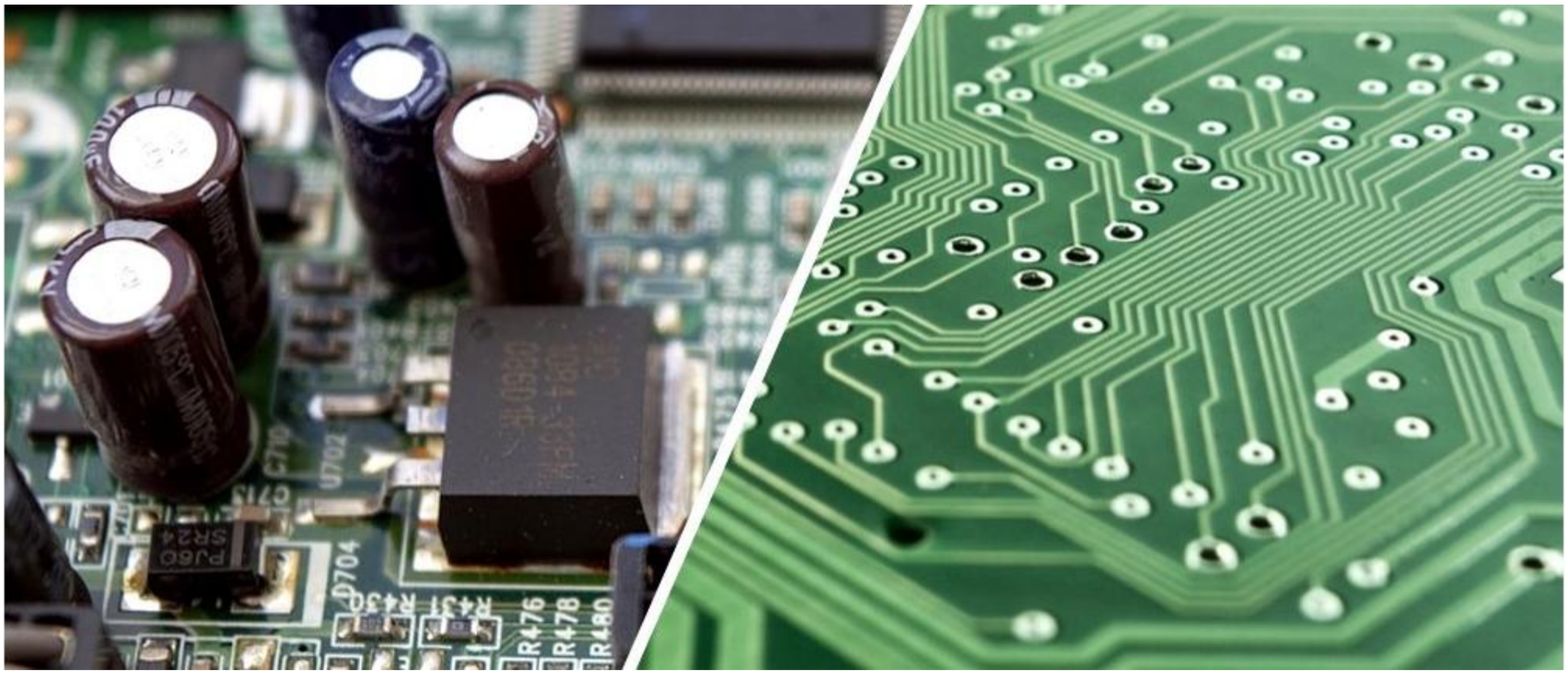
VICTORIA UNIVERSITY OF WELLINGTON
TE HERENGA WAKA

Introduction to Course

XMUT303 Analogue Electronics

What is XMUT303?

- Analysis of analogue electronic devices, their requirements and applications.
- Analysis and design of electronic circuits.
- Electronics design to solve (real-world) problems.



Topics in the Course

- Operational Amplifier (Op Amp).
- Advanced Op-Amp Design and Analysis.
- Op-Amp Circuits.
- Analogue Filters.
- Power Amplifiers.
- Power Supplies.
- Thermal Analysis.
- Noise Analysis.
- PCB Design.

Lectures

Lecture 1: Operational Amplifier (Op Amp).

Lecture 2: Advanced Op-Amp Design & Analysis.

Lecture 3: Op-Amp Circuits.

Lecture 4: Analogue Filters.

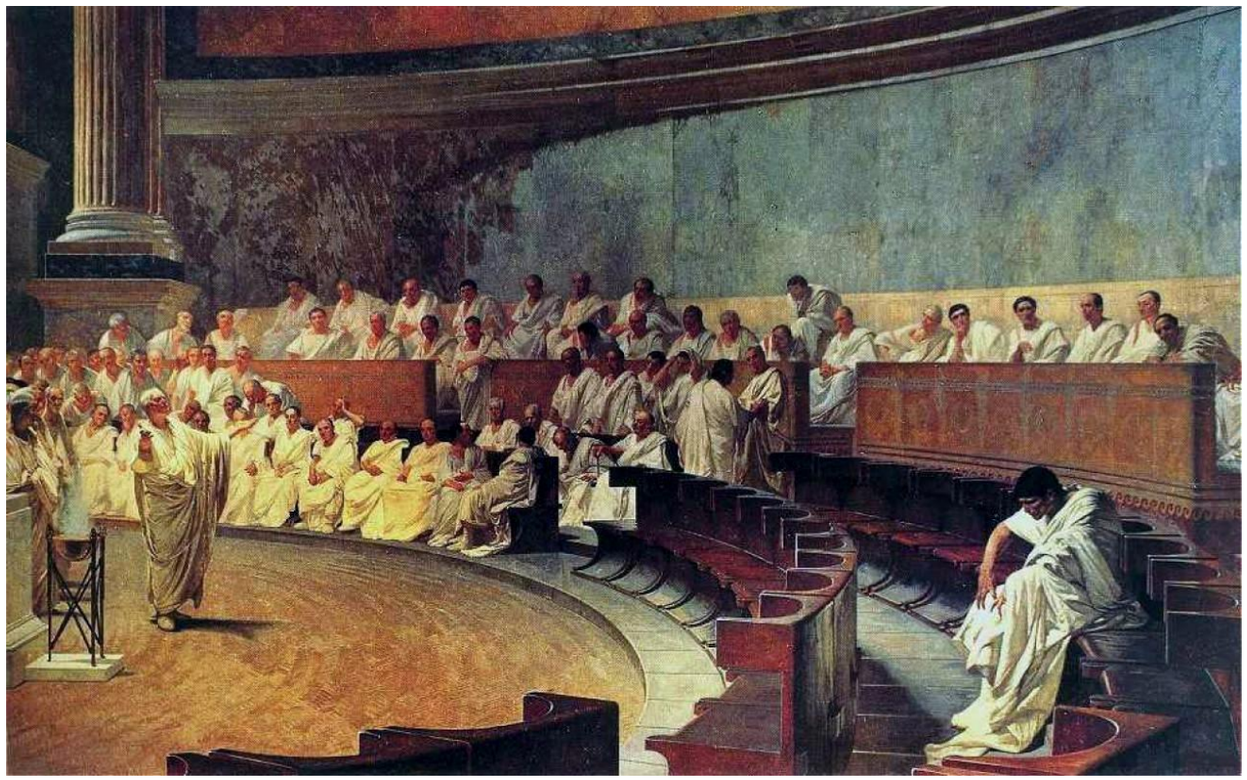
Lecture 5: Power Amplifiers.

Lecture 6: Power Supplies.

Lecture 7: Thermal Analysis.

Lecture 8: Noise Analysis.

Lecture 9: PCB Design.



Tutorials and Demos

Tutorial 1: Operational Amplifier (Op-Amp).

Tutorial 2: Advanced Op-Amp Design and Analysis.

Tutorial 3: Op-Amp Circuits.

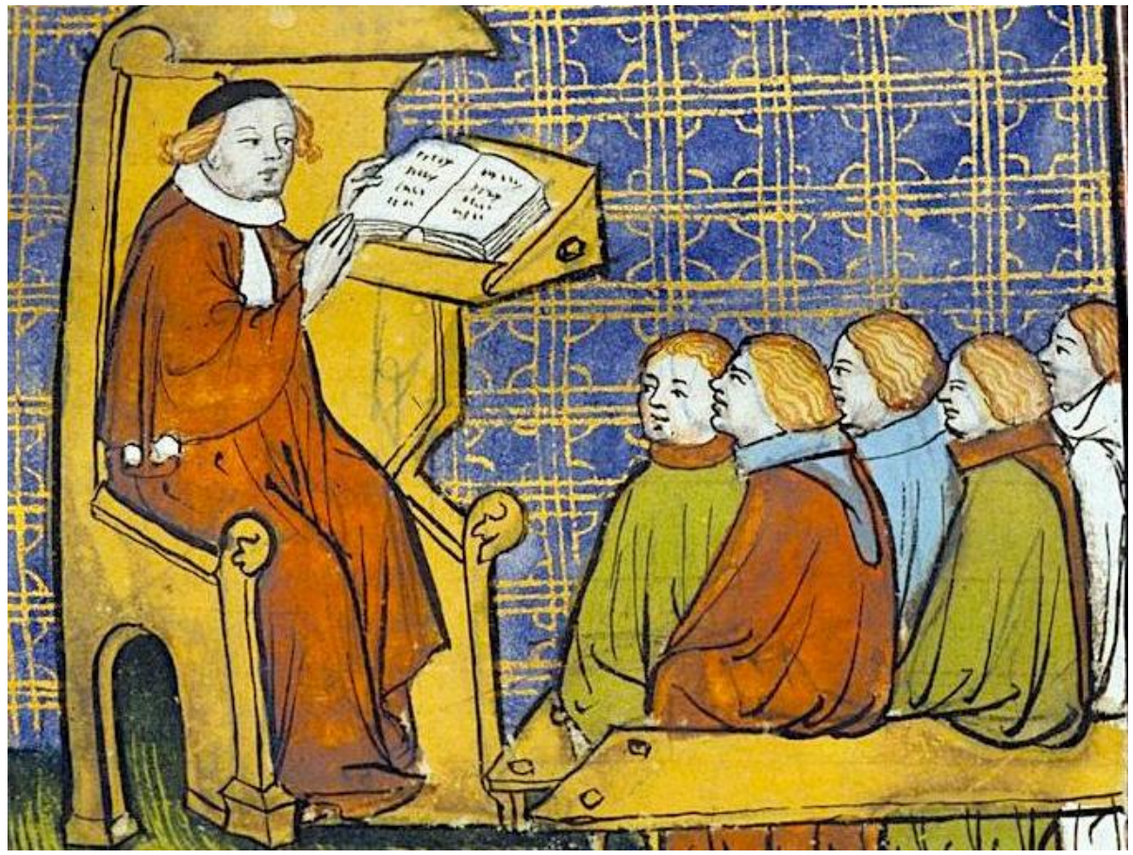
Tutorial 4: Analogue Filters.

Tutorial 5: Power Amplifiers.

Tutorial 6: Power Supplies.

Tutorial 7: Thermal Analysis.

Tutorial 8: Noise Analysis.



Assessment

- 4 Assignments: 20% (each weighted equally).
- 4 Laboratories: 10% (only two labs will be marked and each weighted equally).
- Mid Term Test (2 hours, 4 long answer questions) : 20%.
- Final Exam (2 hours, 4 long answer questions): 40%.
- Attendance and active participations in the course: 10%

Assignments

Assignment 1: Operational Amplifier.

Assignment 2: Op Amp based Circuits.

Assignment 3: Analogue Filter, Power Amplifiers & Power Supply.

Assignment 4: Thermal and Noise Analysis.

Laboratory Exercises

Lab 1: Basic Op Amp Circuits.

Lab 2: Advanced Op Amp Circuits.

Lab 3: Analogue Filters.

Lab 4: Power Amplifiers.



Text Books

- Sergio Franco, Design with Operational Amplifiers and Analog Integrated Circuits, 3rd ed.
- Thomas Floyd, Electronic Devices: Conventional Current Version, 9th ed.
- Sedra & Smith, Microelectronic Circuits, 4th or 5th ed.
- Horowitz & Hill, The Art of Electronics, 2nd or 3rd ed.
- Selected Electronics Industry Technical Reports.

Class Representative (Monitor)

APPOINT A CLASS REP

Become a Student Representative at Victoria!

Class Reps are expected to liaise with the course coordinator, lecturer, and the class to support and improve students' learning experiences in your course and at Victoria

You will be trained and supported in your role by the VUWSA Education Team

Representing your class has many benefits; VicPlus points, Class Rep certificates, professional and personal growth, links to other representation opportunities

VUWSA
YOUR STUDENTS' ASSOCIATION

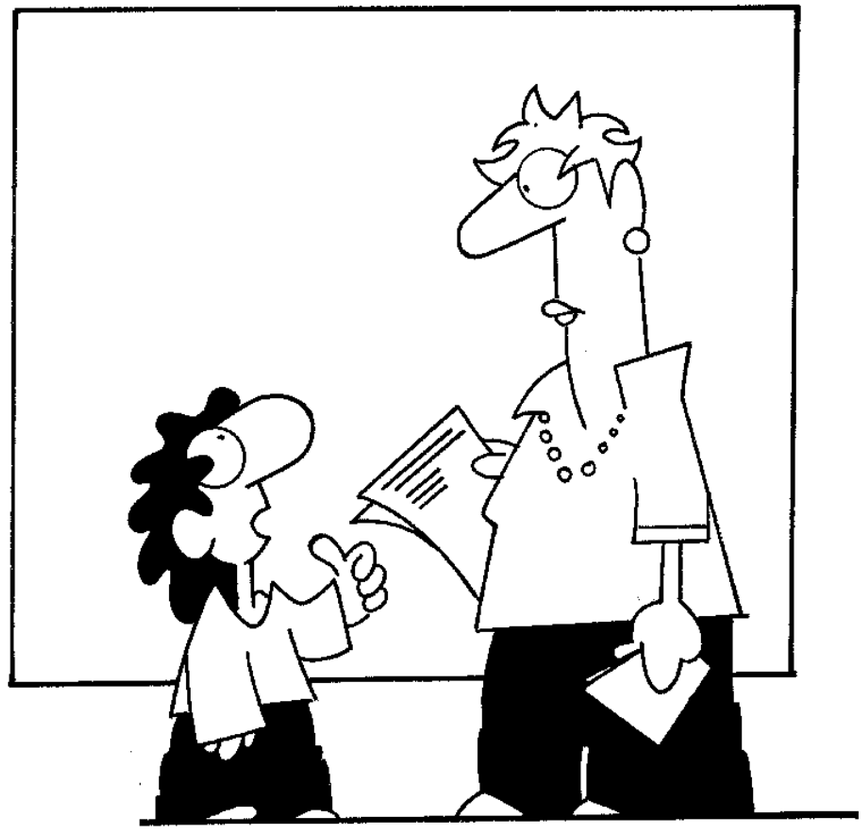
TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

Class Representative (Monitor)



Extensions, Penalties & Plagiarism

- Extensions seldom work.
- Late work will be penalised.
- Work more than one week late will not be marked.



**"My dog didn't eat my homework.
He sold it on Ebay!"**

Extensions, Penalties, & Plagiarism

- Measurements (“numbers”) can be shared with a lab partner – should always be acknowledged.
- Analysis & descriptions (“words”) should always be your own work.
- Official process exists for plagiarists. Not pleasant.

Course Communication

- Course website (lectures, notes, handouts, etc.):

  http://ecs.victoria.ac.nz/Courses/XMUT303_2025T2/

- Course group WeChat.

- Class Representative (Monitor).

Master of Engineering Practice

- Apply your technical knowledge to designing, implementing and evaluating practical engineering problems e.g. mechatronics, renewable energy, software engineering, electronics and networked applications.
- Develop teamwork and professional practice skills in the context of engineering problem solving—in a variety of industry relevant individual and group projects.
- Gain valuable research and communication skills through summarising research, writing engineering proposals, and delivering oral and written reports.

- https://www.wgtn.ac.nz/explore/postgraduate-programmes/master-of-engineering-practice/overview

Master of Computer Science

- Gain specialist knowledge of computer science theories, methods and strategy, and build on your skills in computing architecture, construction, engineering and design.
- Examine networks, software, tools and packages, and learn more about a range of programming languages and computer-based systems.
- Study emerging technology and explore concepts that will form the foundations of future innovations.

- https://www.wgtn.ac.nz/explore/postgraduate-programmes/master-of-computer-science/overview

Master of Software Development

- Learn how to program in Java, an object-oriented programming language used for large, enterprise-class applications.
- Learn about data structures, version control, networking, databases, security, web systems, agile development methodologies, design patterns, and more.
- Gain the core skills and confidence to hit the ground running as a software developer.

- https://www.wgtn.ac.nz/explore/postgraduate-programmes/master-of-software-development/overview

Master of Artificial Intelligence

- Able to demonstrate advanced knowledge of concepts and techniques behind Artificial Intelligence.
- Acquire skills to build AI tools with a wide range of applications and the potential to solve real-world problems across sectors like education, logistics, business, and the web.

- https://www.wgtn.ac.nz/explore/postgraduate-programmes/master-of-artifical-intelligence/overview