

INTRODUCTION TO COMPUTING

Welcome to your first class.

City of Ilagan College · BS Information Systems

2ND SEMESTER · SCHOOL YEAR 2026-2027

Prof. Ryan V. Labrador

Session 1 · Saturday, 15 August 2026



Here's how today works

1

Who is teaching you

A short introduction — and why I said yes to CIC.

25 min

2

How this course works

Grading, rules, your live website, and the AI policy.

35 min

3

Unit 1 — Overview of Computing

What computing is, where it came from, where it's going.

55 min

4

LAB — Orientation & team setup

Form your group, set up your tools, meet your AI assistants.

3 hours

PART 1

Who is teaching you

Twenty-five minutes, then we never talk about me again.



From Public School
Ateneo de Naga
Ateneo de Manila
De La Salle
Harvard Business School

Ryan Visaya Labrador

Engineer • Technology Leader • Entrepreneur

President & CEO

Revlv Solutions, Inc.

Director of ICT / Consulting CTO

Astoria Hotels and Resorts

Chairman & Trustee

Xavier-Batchmates Foundation, Inc.

YOU HAVE ALREADY USED MY WORK

Systems my teams built



MRT-3

Manila

Barcoded ticketing, CCTV streaming and the passenger information system



Free Wi-Fi

Nationwide

DICT national rollout using fiber, VSAT and Starlink — 2022 to today, thousands of sites nationwide



Starlink

DOST-STII

Satellite kits bringing connectivity to far-flung training facilities



PH Navy

& Marine Corps

Fiber networks, VSAT connectivity and ICT security — MITHI 1 to 4



Coast Guard

Modernization

Integrated budgeting and procurement planning software



PMA

Baguio City

Online enrollment, cadet information, attendance and grading systems

None of this started with a big title. It started with one person learning to code.

I was a scholar too

1

Every degree I hold was paid for by someone else

Full academic scholarships from grade school through my master's — Ellen Francisco-Fajardo Foundation, the Ateneo, a President's Scholarship at ADMU.

I did not come from money. I came from Minalabac, Camarines Sur. On some days in HS, I used to walk 13kms to school

2

So now I pay it forward

I have personally sponsored scholars at Ateneo de Naga since 2015. In December 2024 we formally launched the Xavier-Batchmates Foundation, which has now helped more than 50 scholars.

Teaching here is the same thing by another name.

You do not need to be rich to work in technology. I see myself in you 25yrs ago.

PART 2

How this course works

Rules, grades, your website, and the AI question everyone wants to ask.

Introduction to Computing at a glance

3.00

credit units

5

hours every Saturday

16

Saturdays, Aug to Dec

15

units of content

Every Saturday is split in two

 **2 hours · LECTURE**

The ideas. All 80 of us together in one room.

 **3 hours · LABORATORY**

The doing. In your group, building something real.

By December, you will be able to...

- 1 Explain how computers and information systems actually work
- 2 Look at a real business problem and propose a computing solution
- 3 Design a solution using algorithms, flowcharts and working code
- 4 Plan and manage a small information systems project
- 5 Work confidently with hardware, software, networks and data
- 6 Apply ethical, legal and security standards — including with AI
- 7 Present and defend your technical work to an audience
- 8 **Keep learning after this course ends. That one matters most.**

How your grade is computed

Class Standing

70%

Quizzes

35%

Requirements & assignments

35%

Recitation

20%

Attendance & attitude

10%

Periodical Exams

30%

Prelim · Midterm · Final

Note the 10%

Minimum 80% attendance is required to pass.

Fifteen minutes late counts as one full hour absent.

You get a real website on a real server.

Not a simulator. Not a school intranet. A live domain on the public internet that anyone in the world can open.

g01.cic.rmlsystems.net

Ten groups of eight. Ten live sites. Every student gets their own folder inside their group's site.

Week 3

Your group publishes its first page

Week 9

You trace DNS using your own domain as the specimen

December

You defend a portfolio you can show an employer

Yes. You may use AI.

ChatGPT

OpenAI

Gemini

Google

Claude

Anthropic

Three rules. Break them and it is treated as cheating.

1

Declare it

Every submission carries an AI Usage Log: which tool, what you asked, what you changed.

2

Verify it

AI is confidently wrong all the time. If you submit it, you own it.

3

Explain it

I can ask you to explain any line you submitted. "The AI wrote it" is not an answer.

I use AI in my own companies every day. Pretending you won't is not preparing you for work.

PART 3 • UNIT 1

Overview of Computing

Where it came from, why it matters, and where it is going next.

Three words people mix up



Computer

A machine.

A device that accepts data, processes it by following instructions, and produces a result.



Computing

An activity.

Any goal-oriented work that uses, builds, or studies computers. Much bigger than programming.



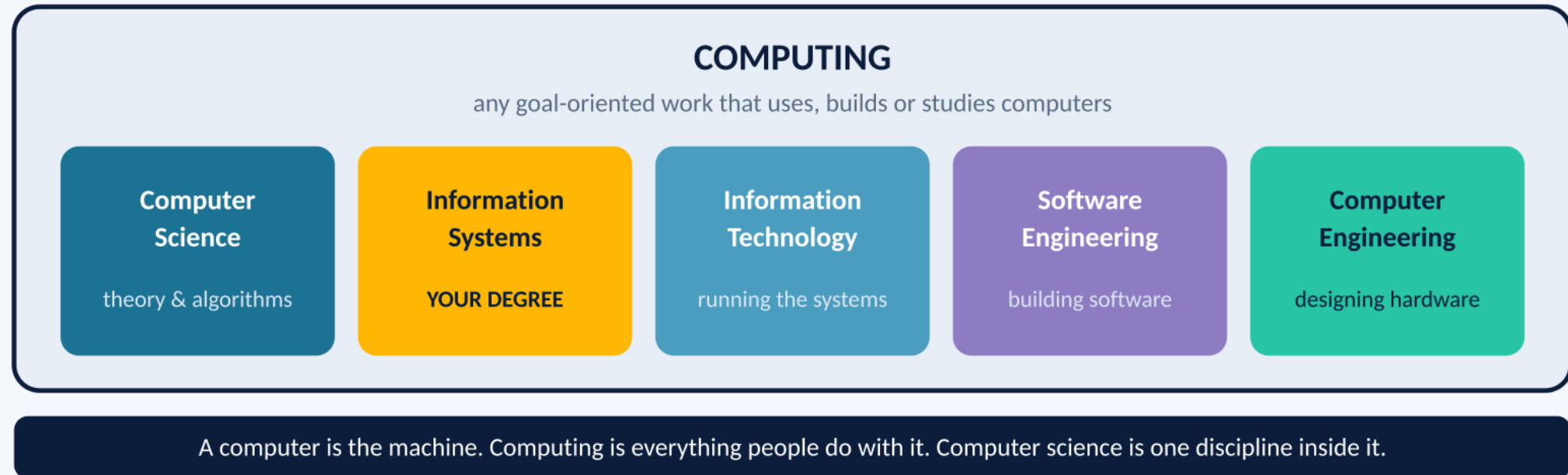
Computer Science

A discipline.

The formal study of computation, algorithms, information and the systems that handle them.

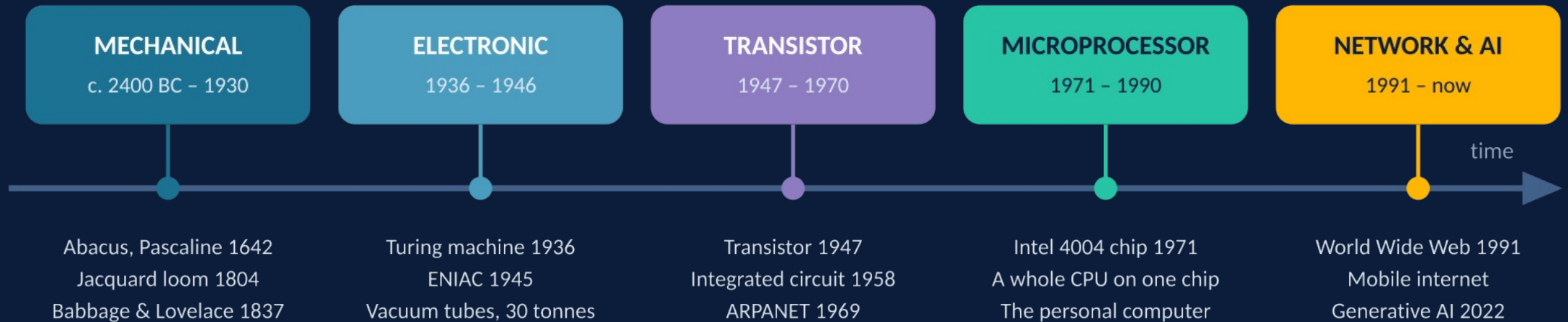
You are enrolled in Information Systems — computing applied to real organisations and the people in them.

What 'computing' actually covers



Every box inside the frame is computing. You chose Information Systems — the one that sits closest to the people and the organisation.

Five eras of computing



Ideas came first

Programmable machines existed in 1804, long before electricity was involved.



Then it got fast

Electronics replaced gears, and each generation shrank the machine.



Then it connected

Networks turned separate machines into one shared, worldwide system.

Before electricity

c. 2400 BC

The abacus

The first widely used calculating aid. Babylon, then China.

1642

Pascal's Pascaline

Blaise Pascal, aged 19, builds a mechanical adding machine for his father's tax work.

1804

The Jacquard loom

Punched cards control weaving patterns. The first programmable machine — and it made cloth.

1837

Babbage's Analytical Engine

Charles Babbage designs a general-purpose mechanical computer. It is never finished.

1843

Ada Lovelace

Writes the first published algorithm intended for a machine. The first programmer was a woman.

1890

Hollerith's tabulator

Processes the US census in one year instead of eight. His company later becomes IBM.

The electronic era

1936	The Turing machine	Alan Turing defines what a computer is — mathematically — before one exists.
1945	ENIAC	30 tonnes. 18,000 vacuum tubes. Slower than the phone in your pocket.
1947	The transistor	Bell Labs. Everything after this is a consequence of this.
1958	The integrated circuit	Kilby and Noyce put many components on one chip.
1969	ARPANET	Four computers are connected. This becomes the internet.
1971	Intel 4004	The first microprocessor. 2,300 transistors on a single chip.
1991	The World Wide Web	Tim Berners-Lee opens it to the public. You will build on it this semester.
2022→	Generative AI	ChatGPT reaches 100 million users faster than any product in history.

Five generations of computers

1st	1940–1956	Vacuum tubes	Room-sized, enormous power draw, machine language only.
2nd	1956–1963	Transistors	Smaller, faster, cheaper. Assembly language arrives.
3rd	1964–1971	Integrated circuits	Keyboards and monitors. Operating systems appear.
4th	1971–today	Microprocessors	The whole CPU on one chip. PCs, phones, the internet.
5th	Now →	Artificial intelligence	Systems that learn rather than only follow instructions.

WHY THIS ACCELERATED SO FAST

Moore's Law

In 1965 Gordon Moore observed that the number of transistors on a chip roughly doubles every two years. It held for decades.



2,300

transistors

Intel 4004, 1971



billions

transistors

a phone chip today



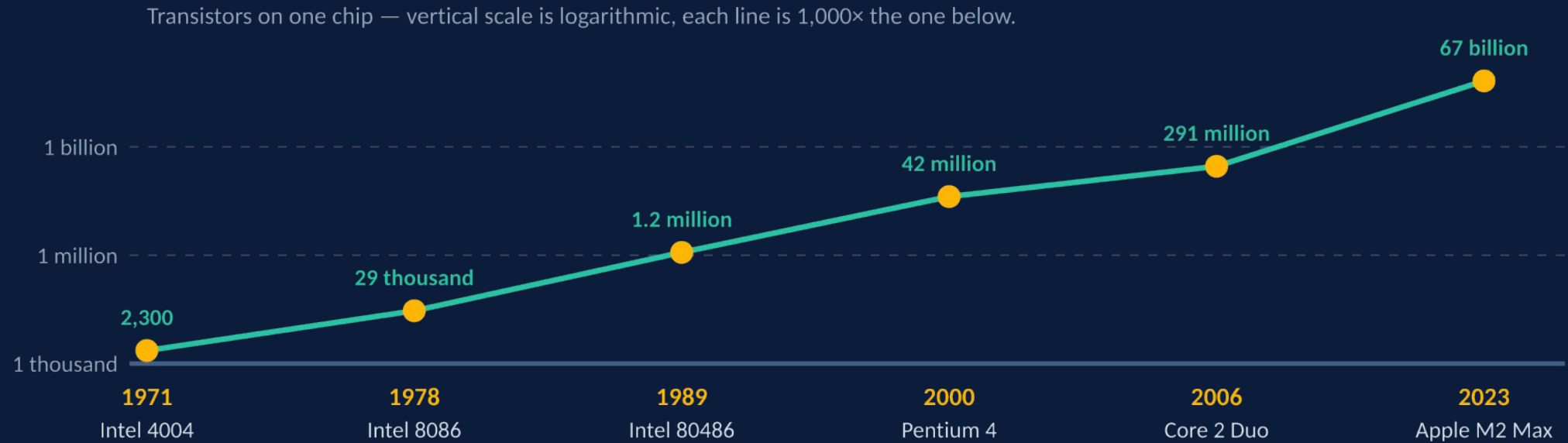
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extra cost

to copy software once written

This is why a student in Ilagan can build something a global company could not have afforded in 1990.

Fifty years of doubling



Every chip on this line is a general-purpose computer. Only the transistor count changed — by a factor of about thirty million in one working lifetime.

Computing is a Philippine industry



\$40B+

IT-BPM export revenue in 2025



~8%

of Philippine GDP



1.97M

jobs projected by end of 2026

And it does not require you to leave Isabela

Remote work, freelancing and global capability centres have moved real technical jobs out of Metro Manila. The DICT Free Wi-Fi programme I work on exists precisely so that provinces like ours are not left behind.

The constraint used to be geography. Now the constraint is skill.

What is arriving next



Artificial Intelligence

Systems that learn from data. Already in this classroom — you will use three of them today.



Cloud Computing

Renting computing power instead of owning it. Why a student can deploy globally for free.



Internet of Things

Ordinary objects with sensors and network connections. Farms, traffic, hospitals.



Blockchain

Shared records nobody can quietly alter. Useful far beyond cryptocurrency.



Quantum Computing

Uses quantum physics for problems classical machines cannot finish this century.



AR / VR / Extended Reality

Digital information layered onto the physical world. Training, medicine, design.

Where a BSIS degree leads

Systems Analyst

Software Developer

Database Administrator

Network Engineer

Cybersecurity Analyst

Data Analyst

IT Project Manager

Business Analyst

Cloud Engineer

QA Engineer

ERP Consultant

Technology Entrepreneur

I have hired for almost every role on this slide. What gets people hired is not their grade — it is whether they can show me something they built.

Four things to remember



Computing is older than computers

Programmable machines existed in 1804. The ideas came first, the electronics came later.



It compounds

Moore's Law meant each generation got radically cheaper. That is why change feels fast.



It is an industry you can join from here

Over \$40 billion a year, and increasingly location-independent.



Tools change, thinking does not

AI will write code for you. Deciding what to build, and checking whether it is right, stays yours.

To the laboratory

1 Find your group

Ten groups. Your group is your team for the whole semester.

2 Set up your accounts

ChatGPT, Gemini and Claude. All three, all free tiers.

3 Run your first AI comparison

Same question, three tools. Write down how the answers differ.

4 Complete the diagnostic

Not graded. It tells me what you already know so I can pitch this right.

Bring a phone or laptop if you have one. If you don't, you will share — and that is fine.

Welcome to computing.

You are the first cohort to take this course at CIC.

Whatever you build this semester goes on the public internet, with your name on it.

Questions?