

# Computer Programming and Analysis (CPA)

Version 25

Published 4/11/2024 by **Bruna Aparecida Alves de Lima** Last updated 5/12/2025 1:40 PM by **Mary-Jo Sallu**

## Program Overview:

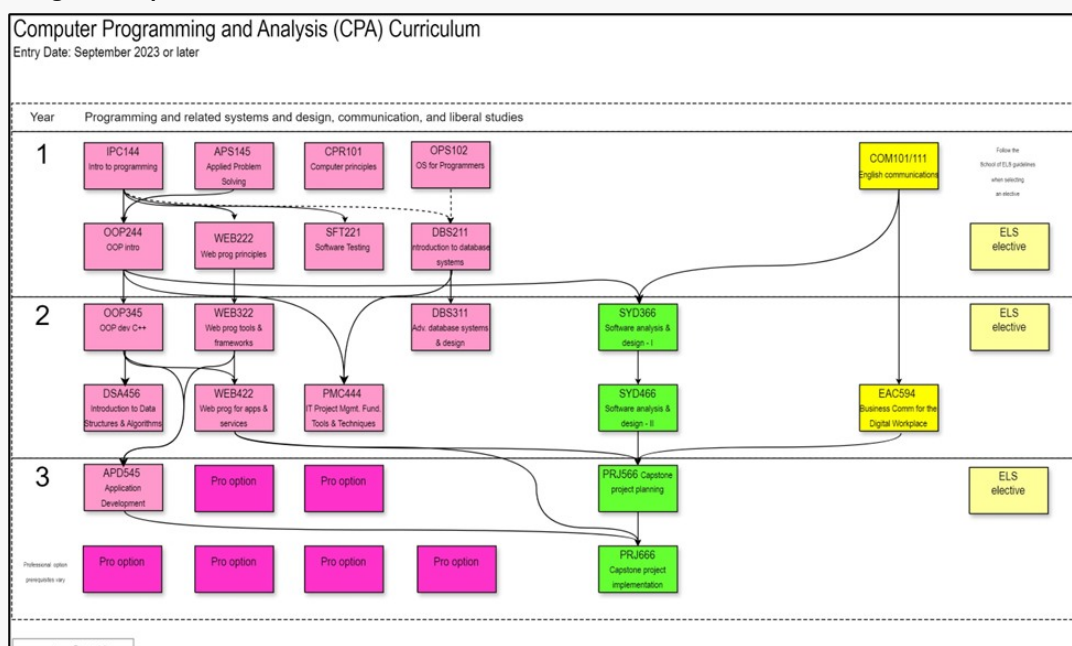
This three-year advanced diploma program provides you with the skills and knowledge to begin your career as a software developer. You will learn programming languages, program design and system analysis. Web concepts are integrated into all courses to develop active database web programs on a variety of operating systems. Advanced techniques are taught through professional option courses.

You will demonstrate skills through a capstone project for an industry partner in your final year to demonstrate your skills and preparedness for a career in the industry. Graduates of this program will enter the industry with highly employable programming, database, software development and communications skills.

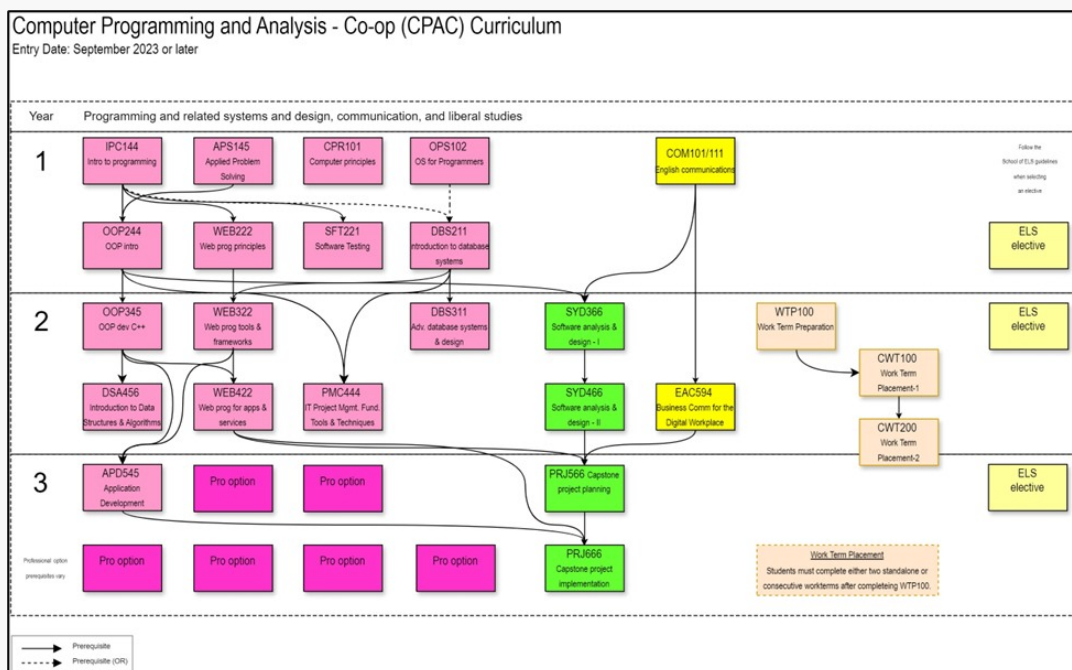
**Part-time option is available >**

<b>Program Code:</b>	CPA
<b>Credential Awarded:</b>	Advanced Diploma
<b>Campus:</b>	Newnham
<b>Duration:</b>	3 years (6 academic semesters)
<b>Starts In:</b>	January, May, and September

## Program Map



## CO OP (CPAC) Program Map



## Program Curriculum

### Computer Programming & Analysis (CPA)

Semester	Course Code	Course Name	Pre-requisite	Delivery Mode
1	APS145	Applied Problem Solving	None	In Person
1	IPC144	Introduction to Programming Using C	None	In Person
1	OPS102	Operating Systems for Programmers	None	In Person
1	CPR101	Computer Principles for Programmers	None	In Person
1	COM101	Communicating Across Contexts	EAC149, EAP500, COM095, ELI Level 8, or placement based on Seneca College English Skills Assessment	In Person
2	OOP244	Introduction to Object Oriented Programming	IPC144 and APS145	In Person
2	WEB222	Web Programming Principles	IPC144	In Person
2	SFT221	Software Testing	IPC144	In Person
2	DBS211	Introduction to Database Systems	IPC144 or ULI101 or OPS102	In Person
2		<b>General Education Option</b>	None	Online
3	OOP345	Object-Oriented Software Development Using C++	OOP244	FASET Flex
3	DBS311	Advanced Database Systems and Design	DBS211	FASET Flex
3	WEB322	Web Programming Tools and Frameworks	WEB222	FASET Flex
3	SYD366	Requirements Gathering Using OO Models	OOP244 and COM101/111	FASET Flex
3		<b>General Education Option</b>		Online
3	WTP100	Work Term Preparation (Co-op students only)		Online
4	EAC594	Business Report Writing	COM101 or COM111 or equivalent	FASET Flex
4	DSA456	Introduction to Data Structures & Algorithms	OOP345	FASET Flex
4	WEB422	Web Programming for Apps and Services	WEB322 and OOP345	FASET Flex
4	PMC444	IT Project Management Fundamentals Tools and Techniques	DBS211 and OOP244	FASET Flex
4	SYD466	Analysis and Design using OO Models	SYD366	FASET Flex
5	PRJ566	Project Planning and Management	SYD466 and WEB422 and EAC594	Hybrid
5	APD545	Application Development	OOP345 and WEB322	Hybrid
5		<b>General Education Option</b>		Hybrid
5		<b>Professional Option</b>		Hybrid
5		<b>Professional Option</b>		Online
6	PRJ666	Project Planning and Management	WEB422 and APD545 and PRJ566	Hybrid
6		<b>Professional Option</b>		Online
6		<b>Professional Option</b>		Online
6		<b>Professional Option</b>		Online
6		<b>Professional Option</b>		Online

2 Work Terms (Co-op Students only)

## Program

### Learning Outcomes

As a graduate, you will be prepared to reliably demonstrate the ability to:

- Identify, analyze, design, develop, implement, verify and document the requirements

for a computing environment.

- Diagnose, troubleshoot, document and monitor technical problems using appropriate methodologies and tools.
- Analyze, design, implement and maintain secure computing environments.
- Analyze, develop and maintain robust computing system solutions through validation testing and industry best practices.
- Communicate and collaborate with team members and stakeholders to ensure effective working relationships.
- Select and apply strategies for personal and professional development to enhance work performance.
- Apply project management principles and tools when responding to requirements and monitoring projects within a computing environment.
- Adhere to ethical, social media, legal, regulatory and economic requirements and/or principles in the development and management of the computing solutions and systems.
- Investigate emerging trends to respond to technical challenges.
- Gather, analyze and define software system specifications based on functional and non-functional requirements.
- Design, develop, document, implement, maintain and test software systems by using industry standard software development methodologies based on defined specifications and existing technologies/frameworks.
- Select and apply object-oriented and other design concepts and principles, as well as business requirements, to the software development process.
- Gather requirements and model, design, implement, optimize, and maintain data storage solutions.
- Integrate network communications into software solutions by adhering to protocol standards.

#### Degree Pathway Options:

- **Transfer Pathway into Honours Bachelor of Technology - Software Development (BSD)**
- **Transfer Pathway into Honours Bachelor of Commerce - Business Technology Management (BTM)**
- **Transfer Pathway into Honours Bachelor of Data Science and Analytics (DSA)**

#### Related Programs

Computer Engineering Technology

Computer Programming

Computer Systems Technology

**To learn more about the program, please visit the school's page.**[School of Computer Programming & Analysis](#)

tags : cpa, scpa