CPA - Computer Programming and Analysis

Version 54
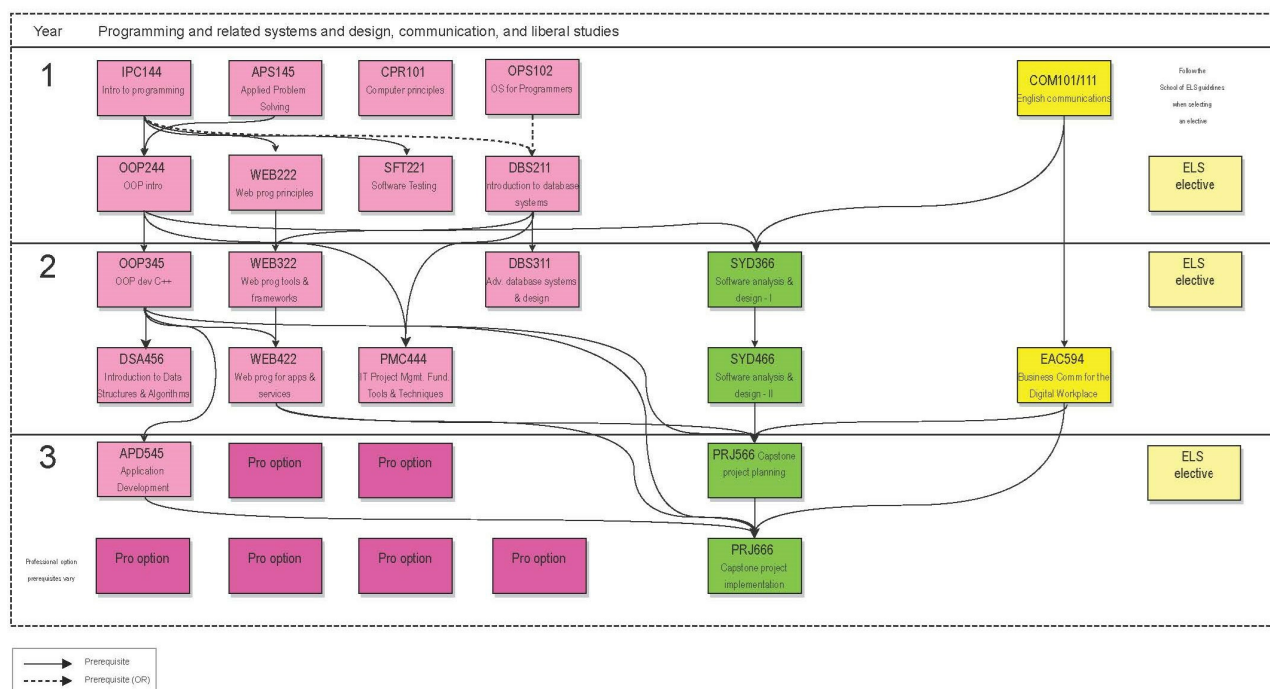
Program Code:	CPA
Credential Awarded:	Advanced Diploma
Campus:	Newnham & Seneca International Academy, Markham
Duration:	3 years (6 academic semesters)
Starts In:	January, May and September

Program Map

Computer Programming and Analysis (CPA) Curriculum
Entry Date: September 2023 or later

Program Curriculum

Computer Programming & Analysis (CPA) - 23-24

Semester 1		
Course Code	**Course Name**	**Pre-requisites**
APS145	Writing Strategies	None
COM101 or COM111	Communicating Across Contexts or Communicating Across Contexts (Enriched)	None
CPR101	Computer Principles for Programmers	None
IPC144	Introduction to Programming Using C	None
OPS102	Operating Systems for Programmers	None

Semester 2		
Course Code	Course Name	Pre-requisite
DBS211	Introduction to Database Systems	IPC144 and OPS102
OOP244	Introduction to Object Oriented Programming	IPC144 and APS145
SFT221	Software Testing	IPC144
WEB222	Web Programming Principles	IPC144
	General Education Course	

Semester 3		
Course Code	Course Name	Pre-requisites
DBS311	Advanced Database Services	DBS211
OOP345	Object-Oriented Software Development Using C++	OOP244
SYD366	Software Analysis and Design - I	OOP244 and COM101/COM111
WEB322	Web Programming Tools and Frameworks	WEB222 and DBS211
WTP100	Work Term Preparation	None
	General Education Course	

WIL Term		
Course Code	Course Name	Pre-requisite
CPA331	Computer Programming and Analysis, Co-op	WTP100

Semester 4		
Course Code	Course Name	Pre-requisites
DSA456	Data Structures and Algorithms	OOP345
EAC594	Business Communication for the Digital Workplace	COM101/COM111
PMC444	IT Project Management Fundamentals Tools and Techniques	OOP244 and DBS211
SYD466	Software Analysis and Design - II	SYD366
WEB422	Web Programming for Apps and Services	OOP345 and WEB322

WIL Term		
Course Code	Course Name	Pre-requisite
CPA332	Computer Programming and Analysis, Co-op II	WTP100

Semester 5		
Course Code	Course Name	Pre-requisite
APD545	Application Development	OOP345
PRJ566	Project Planning and Management	SYD466, EAC594 and WEB422
	General Education Course	
	Professional Options	
	Professional Options	

Semester 6		
Course Code	Course Name	Pre-requisite
		APD545, EAC594, OOP345,

PRJ666	Project Implementation	PRJ566 and WEB422
	Professional Options	
	Professional Options	
	Professional Options	
	Professional Options	

Professional Options		
Course Code	Course Name	Pre-requisites
BCI433	IBM Business Computing	OOP345 and DBS211
CCP555	Cloud Computing for Programmers	WEB422
CVI620	Computer Vision	DSA456
DBA625	Database Administration	DBS311
DBS501	Stored Procedures Using Oracles PL/SQL	DBS311
ELA521	Ethics, Law and Application Development	DBS211
GAM531	Game Engine Foundations	OOP345
GAM532	Game Engine Techniques	GAM531
GAM536	Game Content Creation	OOP345
GAM537	Game Development Fundamentals	OOP345
GPU621	Parallel Algorithms and Programming Techniques	OOP345
MAP523	Mobile App Development - iOS	OOP345 and WEB322
MAP524	Mobile App Development - Android	OOP345
MAP526	Mobile App Development - Cross Platform	OOP345
MST300	Introduction to Microsoft Cloud Technologies	WEB322
OSD600	Open Source Development	OOP345 and WEB322
OSD700	Open Source Development Project	OSD600
SDR520	Software Design for Robotics Applications	WEB422 and OOP345
SPO600	Software Portability and Optimization	IPC144 and OOP345
DEN502	Digital Entrepreneurship	EAC594
UNX510	UNIX BASH Shell Scripting	OOP345 and OPS102
UNX511	UNIX Systems Programming	OOP345 and OPS102
WEB524	Web Programming Using ASP.NET	WEB422

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 BSD: Honours Bachelor of Technology - Software Development

Transfer Pathway into BTM: Honours Bachelor of Commerce - Business Technology Management

Transfer Pathway into DSA: Honours Bachelor of Data Science and Analytics

Further Information About This Program from Seneca's Website

tags : adv-diploma, cpa, sdds