Blockchain

A WIL Digital Initiative

Presented by the Information and Communications Technology Council

Welcome to ICTC's WIL Digital: Blockchain

ICTC's WIL Digital is an innovative Work Integrated Learning (WIL) program that helps students gain insight and skills to advance learning and meaningful work experience.Good luck and have fun!

COURSE OVERVIEW

The course has been designed to support the development of the next generation of talent by introducing an innovative and prominent technology: Blockchain. This is an area of technology that is rapidly growing and transforming the digital landscape in Canada and globally.

Blockchain is a decentralized immutable information storing system that is open to everyone. It can be used for tracking and recording transactions and assets, and reduces the risks and costs involved. Most notably, it is the technology behind the cryptocurrency Bitcoin. Blockchain is a complex topic, the skills to utilise this technology effectively need to be built iteratively.

- In this course, we'll:
    - Compare and contrast the different types of blockchain technologies
    - Describe industry applications of blockchain technology

This 6-module online course will serve to introduce post-secondary students and recent graduates to what blockchain is, how it works and its history. Using real-world use-cases, the course will support learners in learning about the potential applications of blockchain in different industries, such as finance, supply chain and healthcare, as well as some potential challenges.

Upon completion of this course, learners will understand the key applications and challenges for blockchain today, how blockchain will change the digital landscape and how we do business. The course is meant to act as an introduction to the topic and will encourage further investigations and understanding of this complex concept through supplemental readings, online resources, and on-the-job learning.

ABOUT THIS COURSE

Course Outline

Module	Title	Learning goals
1	**Introduction to blockchain**	• Discover the history of Bitcoin and Blockchain • Analyze how Bitcoin and Ethereum work • Compare and contrast the different types of Blockchain technologies
2	**Blockchain in Financial Services**	• Discover the origins and recent history of money • Describe the current Blockchain regulations in finance
3	**Cryptocurrencies, Decentralized Finance (DeFi), and NFTs**	• Enumerate, characterize and differentiate the main cryptocurrencies • Analyze and execute smart contracts • Illustrate applications of Blockchain and NFTs (Non-Fungible Tokens)
4	**Industry applications**	• Describe industry applications of Blockchain technology • Design a simple application of Blockchain concepts to a real-world scenario • Develop a pitch for a token-based solution addressing a business problem

5	**Self-Sovereign Identity**	• Analyze and critique the management of digital identity • Identify its main actors and Canadian standards • Analyse and critique the security and risk management aspects of Blockchain technology
6	**The future of blockchain**	• Identify the Canadian main actors in Blockchain • Discover the related opportunities for Blockchain careers in Canada • Analyze and critique the societal and economic impacts of Blockchain technologies

TARGETED AUDIENCE

This course is designed for post-secondary students who are interested in understanding the basic concept of blockchain while developing a presentation with real-world examples.

TOPIC OVERVIEW

The modules have been collaboratively designed by experts who have spent the last decade of their careers applying the discipline of blockchain into help fortune-500 companies and large public-sector organizations across North America become more digitally savvy. This course is bringing you reflections, best practices, and traps to avoid, developed from over a decade in the trenches doing this work.

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Module 2: Blockchain in Financial Services (EN)

EXIT COURSE
START MODULE
DETAILS

Welcome to Module 2!

In this module, we will look at how money has evolved over the last 10,000 years to help us understand how blockchain emerged and fits into the timeline. Followed by looking at how blockchain works in Canada's heavily regulated, stable, and trusted financial services today. This module is meant to be a light touch on history and reflective so that you can appreciate how blockchain is structured and works and begin to make predictions about what it will look like in Canada in the future. You have more of a role in blockchain and its future than you think. Let's begin.

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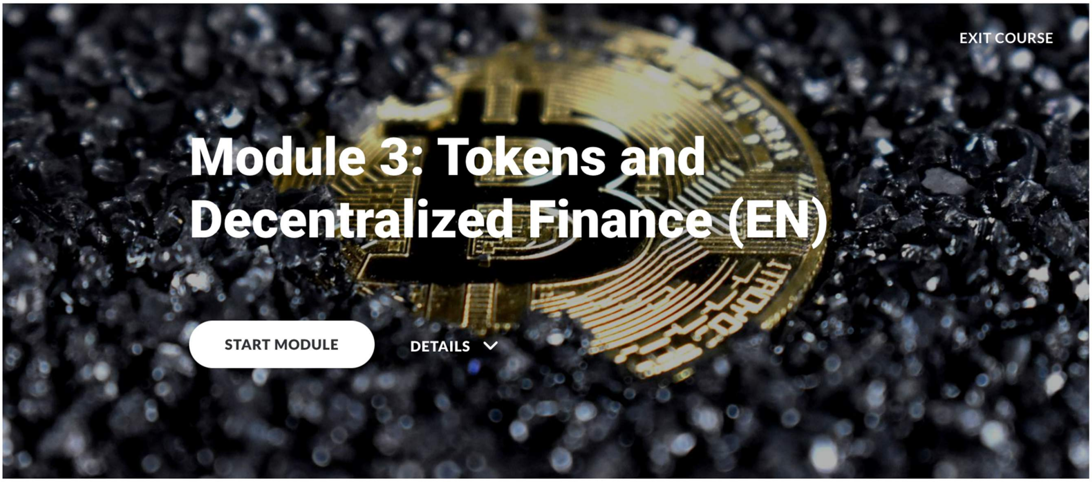

Module 3: Tokens and Decentralized Finance (EN)

Welcome to Blockchain Module 3!

Now that we have learned the basics of blockchain and its implications in the financial world, it's time to dive deeper into blockchain. Blockchain as a digital ledger is the foundation for creating additional functionalities.
In this module, we will explore tokens and smart contracts, and learn how they increase the functionality of blockchain. We will also touch on regulations related to these uses.

🕐 60 Minutes

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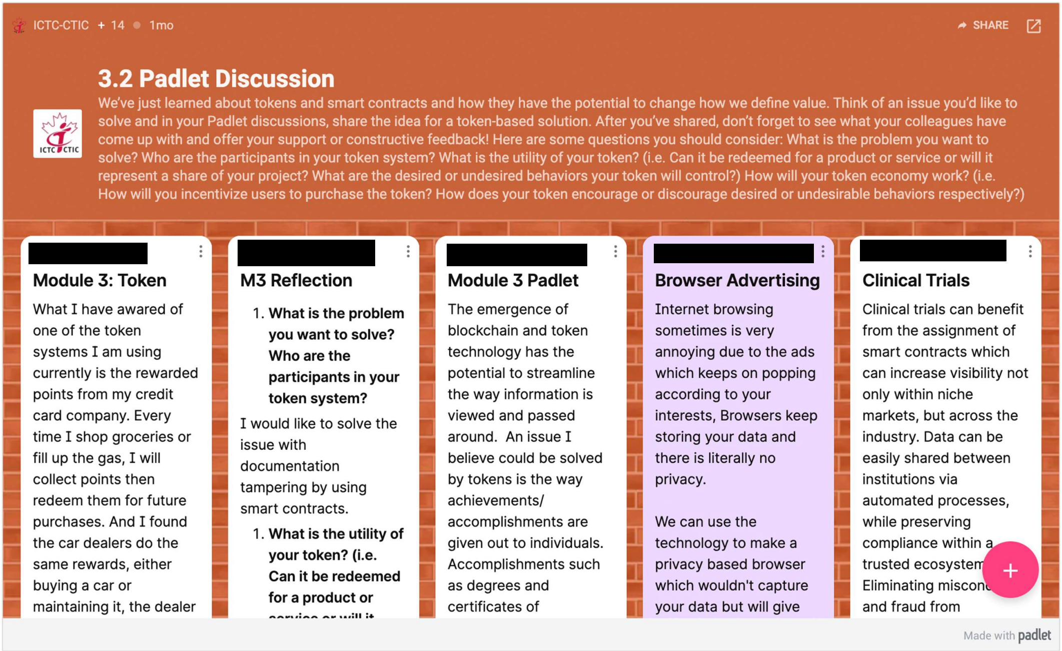
3.2 Padlet Discussion

We've just learned about tokens and smart contracts and how they have the potential to change how we define value. Think of an issue you'd like to solve and in your Padlet discussions, share the idea for a token-based solution. After you've shared, don't forget to see what your colleagues have come up with and offer your support or constructive feedback!

Here are some questions you should consider:

1. What is the problem you want to solve? Who are the participants in your token system?
2. What is the utility of your token? (i.e. Can it be redeemed for a product or service or will it represent a share of your project? What are the desired or undesired behaviors your token will control?)
3. How will your token economy work? (i.e. How will you incentivize users to purchase the token? How does your token encourage or discourage desired or undesirable behaviors respectively?)



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[redacted]

Module 3: Token

What I have awared of one of the token systems I am using currently is the rewarded points from my credit card company. Every time I shop groceries or fill up the gas, I will collect points then redeem them for future purchases. And I found the car dealers do the same rewards, either buying a car or maintaining it, the dealer

[redacted]

M3 Reflection

1. **What is the problem you want to solve? Who are the participants in your token system?**

I would like to solve the issue with documentation tampering by using smart contracts.

1. **What is the utility of your token? (i.e. Can it be redeemed for a product or**

[redacted]

Module 3 Padlet

The emergence of blockchain and token technology has the potential to streamline the way information is viewed and passed around. An issue I believe could be solved by tokens is the way achievements/ accomplishments are given out to individuals. Accomplishments such as degrees and certificates of

[redacted]

Browser Advertising

Internet browsing sometimes is very annoying due to the ads which keeps on popping according to your interests, Browsers keep storing your data and there is literally no privacy.

We can use the technology to make a privacy based browser which wouldn't capture your data but will give

[redacted]

Clinical Trials

Clinical trials can benefit from the assignment of smart contracts which can increase visibility not only within niche markets, but across the industry. Data can be easily shared between institutions via automated processes, while preserving compliance within a trusted ecosystem Eliminating miscon and fraud from

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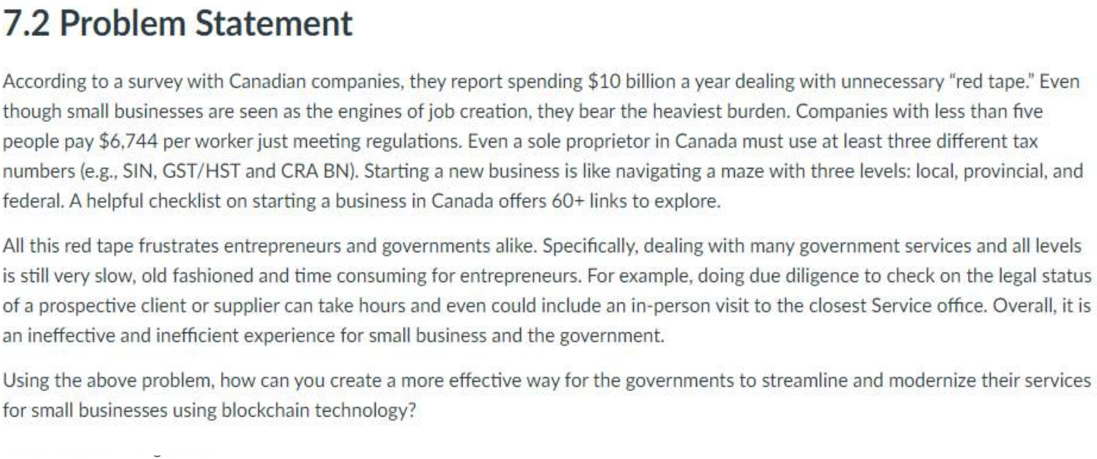

7.2 Problem Statement

According to a survey with Canadian companies, they report spending $10 billion a year dealing with unnecessary "red tape." Even though small businesses are seen as the engines of job creation, they bear the heaviest burden. Companies with less than five people pay $6,744 per worker just meeting regulations. Even a sole proprietor in Canada must use at least three different tax numbers (e.g., SIN, GST/HST and CRA BN). Starting a new business is like navigating a maze with three levels: local, provincial, and federal. A helpful checklist on starting a business in Canada offers 60+ links to explore.

All this red tape frustrates entrepreneurs and governments alike. Specifically, dealing with many government services and all levels is still very slow, old fashioned and time consuming for entrepreneurs. For example, doing due diligence to check on the legal status of a prospective client or supplier can take hours and even could include an in-person visit to the closest Service office. Overall, it is an ineffective and inefficient experience for small business and the government.

Using the above problem, how can you create a more effective way for the governments to streamline and modernize their services for small businesses using blockchain technology?