



Open Guide for VET Providers

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Preamble

Introduction to the project

BESIDE - A Massive Open Online Course developed within the project Blockchain use cases in Digital finance. Co-funded by the Erasmus+ Programme of the European Union Grant Agreement Number: 2022-1-DE02-KA220-VET-000089587.

Every day new technologies and digital tools appear at an increasing rhythm, shaping the internal functioning of our society, forcing us to adapt or be excluded from it. One of the biggest impacts of this digital growth concerns the world of work. According to the European Centre for the Development of Vocational Training (CEDEFOP), more than half of adult employees in the financial sector have experienced a technological change in the workplace in the last 5 years, and as most financial transitions are now conducted digitally, new issues are emerging in which blockchain technology will play a key role. In this context, this project aims to create an innovative course aimed at finance professionals with low knowledge of emerging technologies in digital finance and blockchain applications. It will improve their digital readiness and resilience and enable them to manage the digital transformation to provide comprehensive and digitally up-to-date financial services to their clients.

The BESIDE course covers topics related to digital currencies and the use of blockchain technology. It is split into three modules and made available via an online platform. It can be completed in self-study, as well as during in-person learning sessions.

Partnership

BESIDE provides a complete introduction to topics such as smart contracts, digital assets, and more. Using the platform users will be able to navigate through various modules and units. Multiple project partners are collaborating as a consortium to develop the BESIDE platform. Our partners bring specialisation and expertise in various fields, from finance to education.

Lead Partner: Italian Chamber of Commerce (ITKAM) (Germany)

ww.itkam.org

ITKAM is the Italian Chamber of Commerce for Germany, an organisation that assists German businesses in entering and expanding into the Italian market and participates in European projects and initiatives. ITKAM is coordinating the partners and their collaboration in the creation of BESIDE.

Partner: F6S (Ireland)www.f6s.com

F6S is a leading global founder and startup network that helps public sector entities around the world to promote, communicate and disseminate technical and research projects. F6S stands for F-ounder-S. F6S' mission is to help founders and startups grow to solve the world's pressing social, economic, environmental, sustainability and innovation problems. In addition to F6S' work with governmental entities, we also work with corporates, investors, research institutions, programs, universities and others in the global startup ecosystem. F6S tools deliver company growth through grants, partnerships, funding, investment, pilot contracts, partnerships, jobs & talent recruitment, company services and more.

Partner: Fondazione Luigi Clerici (Italy)www.clerici.lombardia.it

Fondazione Luigi Clerici is a private non-profit organization which offers training and services to support work placement, with an articulated and customized offer, responsive to the needs of the area and the local production system. It also participates in various social initiatives and projects related causes related to education, technology, finance, and international collaboration.

Partner: Lidi Smart Solutions (The Netherlands)www.lidi-smart-solutions.com

Lidi Smart Solutions offers online courses for adults on various topics. They provide e-learning platforms where experts can share their knowledge through video courses. They also collaborate with partners on social innovation projects.

Partner: The Hive (Italy)www.the-hive.it

The Hive is a community and workspace where startup founders, professionals, and freelancers collaborate on projects. It promotes ethical entrepreneurship and social responsibility. It's a hub for innovation, merging tradition with new business models. Additionally, The Hive is involved in European-funded projects supporting entrepreneurship and business development. It's an initiative of SIDAGROUP and GreenVale Ventures Europe Group, which invest in startups and SMEs internationally.

Partner: Coopération Bancaire pour l'Europe (Belgium)

www.cbe.be

CBE, Coopération Bancaire pour l'Europe, is a Brussels-based organisation formed in 1992 by international banks. It provides information and advisory services on European financing themes and programs. CBE assists in project management, tender analysis, training, and organises meetings with European institutions. Its activities cover EU regulations, funding programs, public procurement, investment measures, research, banking reforms, and funding guidelines.

Partner: Frankfurt School of Finance and Management (Germany)

www.frankfurt-school.de

The Blockchain Centre of the Frankfurt School of Finance and Management is a think tank and research centre focused primarily on investigating the implications of blockchain technology. In addition to general research and prototype development, the FSBC serves as a networking hub for managers, start-ups, and experts to exchange knowledge and best practices. The FSBC also organises educational opportunities for both students and executives, including on-campus courses, workshops, and conferences.

Our partner organisations are spread across the EU and are working collaboratively to execute the BESIDE project. Each partner is responsible for certain aspects of the overall project. The project lead is the Italian Chamber of Commerce in Germany, ITKAM.

Objectives

BESIDE aims to offer an approachable introductory point to the world of blockchain technology and its implementations without requiring any previous knowledge to complete. The project provides an online platform with an online course designed to convey a solid foundational understanding of this new technology intuitively.

The course aims to provide participants with a comprehensive understanding of blockchain technology and its applications in digital finance. Through theoretical insights and practical activities, students will explore topics ranging from cryptocurrency fundamentals to smart contract development. By the end of the course, participants will have acquired the knowledge and skills necessary to navigate the complexities of blockchain technology, enabling them to pursue opportunities in various sectors of the digital economy. Students will learn about topics they may encounter in both their personal and professional lives.

The course is split into three separate modules, which are structured as follows:

- **Module 1: Financial**
 - 1.1: Cryptocurrencies & The Blockchain
 - 1.2: Use Cases
 - 1.3 Activity: Use Case Development
 - 1.4: Portfolio Management
 - 1.5: Assessment (M1)

- **Module 2: Digital**
 - 2.1: Tokenization & Regulation
 - 2.2: Blockchain Payments
 - 2.3: Activity: ReFi
 - 2.4: Oracles, Data, GDPR
 - 2.5: Assessment (M2)

- **Module 3: Technical**
 - 3.1: Wallets, Security, Interacting with Web3
 - 3.2: Smart Contracts
 - 3.3: Activity: Token Creation
 - 3.4: Consensus Protocols
 - 3.5: Assessment (M3)

In summary, BESIDE aims to provide an accessible introduction to blockchain technology through an online platform and course, catering to individuals with no prior knowledge. The course is structured into three modules covering financial, digital, and technical aspects of blockchain, equipping participants with foundational knowledge and practical skills essential for navigating the digital economy.

Context

Blockchain technology has emerged as a revolutionary force reshaping various industries, with digital finance being a primary beneficiary. At its core, blockchain is a decentralised and immutable ledger that securely records transactions across a network of computers.

This technology challenges the role of intermediaries, such as banks, by providing transparent and tamper-proof records of transactions. In the realm of digital finance, blockchain has introduced novel concepts like cryptocurrencies, which are digital assets designed to serve as mediums of exchange using cryptographic techniques to secure transactions and control the creation of new units.

Additionally, blockchain facilitates the creation and execution of smart contracts, self-executing contracts with the terms directly written into code. These innovations have significant implications for financial systems, offering increased efficiency, transparency, and accessibility to individuals and businesses worldwide.

Understanding the fundamentals of blockchain and digital finance is crucial for navigating the evolving landscape of the digital economy and seizing opportunities for innovation and growth. Innovation based on blockchain implementations affects most sectors of the economy. The goal of BESIDE is to provide an easy introductory point to this vast topic.

Introduction

Purpose

The purpose of this handbook is to help trainers, organisations, and VET providers deliver training courses, as well as to convey to trainers the evaluation methods they will carry out during training. The overall goal of the BESIDE project, in conjunction with this guide, is to support trainers in supporting the education process, as well as empowering individuals with a self-starter mentality.

The BESIDE e-learning course is designed to empower individuals interested in blockchain technology by providing them with the necessary knowledge and tools to both understand and implement the innovative potential of blockchain technology in their personal and professional lives. This course can be taught with the direct involvement of educators. Educators who participate in the training will help develop students' skills and knowledge. The training aims to cover all vital fundamentals of blockchain technology, from portfolio management to actually deploying a token on a blockchain.

In order for prospective participants to be able to fully exploit the potential of this course, in-person training will be beneficial. To provide this training, the competence and proficiency of VET (vocational education and training) providers in the relevant fields will be called upon. Furthermore, this guide is designed to provide training for the trainers in conjunction with a virtual “training the trainers” session, which will also be recorded and made available.

Objectives:

1. Provide an understanding of the implemented training methods and module content.
2. Describe how BESIDE can be utilised both in-person and individually.

Structure

This guide for VET providers takes the form of a digital handbook for trainers to engage in financial training for individuals interested in expanding their knowledge surrounding blockchain technology. All educators, VET providers, and anyone wishing to teach this course should take the time to read and understand the complete manual.

Most of the work consists of carefully preparing and delivering a training session. This manual was created primarily with the intention of being a tool for trainers in the social entrepreneurship sector to be able to implement training courses for a local and international

audience. By using this manual, trainers will be able to make better choices and will be better able to deal with situations they did not expect.

The manual contains information and activities that explain how peer education works and what value it has for information providers. Its purpose is to help trainers and facilitators design and implement quality active learning projects based on best practices and experiences. Furthermore, the manual provides several activities to be used in the field of active learning, addressing in particular social finance issues at local and European levels.

This manual is intended as an introductory guide, a collection of information, and useful tips for a first experience in the world of training. It cannot and should not be considered as a single point of reference, as the subject of training is much broader, multifaceted, and in-depth. The manual is intended to support a deeper knowledge-wide and in-depth understanding and developments in the field of training.

The following chapters, "Course Content" and "Facilitation Tips," serve as indispensable resources for both learners and facilitators alike. "Course content" provides a structured overview of the material, guiding learners through objectives, delivery methods, and module breakdowns, ensuring a cohesive learning journey. Meanwhile, "facilitation tips" offer valuable insights for instructors, encompassing strategies tailored to online platforms and in-person training sessions, fostering engagement and effective knowledge transfer. Together, these chapters optimise the educational experience, empowering both learners and facilitators to achieve their goals efficiently and effectively.

Course Content

Overview

Welcome to our comprehensive course on Blockchain Fundamentals - BESIDE. This course is designed to provide students with a thorough understanding of blockchain technology, its applications, and its implications across various industries. Throughout the course, they will embark on a journey divided into three modules, each focusing on different aspects of blockchain technology.

In Module 1, the Finance Module, we delve into the foundational principles of cryptocurrencies, blockchain technology, and portfolio management. Students will explore topics such as the scarcity of cryptocurrencies, smart contracts, and token economics. By the end of this module, they will have a basic understanding of how cryptocurrencies derive value, token economics, and various use cases within the financial landscape.

Moving on to Module 2, the Digital Module, we examine advanced concepts such as tokenization, blockchain payments, and data privacy. Students will explore the regulatory landscape surrounding blockchain technology, delve into the intricacies of digital payments, and analyse emerging trends such as tokenized carbon credits. Through interactive assignments and engaging discussions, they will gain practical insights into the intersection of technology, regulation, and environmental sustainability.

Finally, in Module 3, the Technical Module, we delve into the technical intricacies of blockchain technology, including wallet security, Ethereum smart contracts, and consensus protocols. Students will learn about the security principles underpinning blockchain technology, understand the mechanics of smart contracts, and explore different consensus mechanisms used in blockchain networks. By the end of this module, they will have acquired the technical expertise necessary to navigate the blockchain landscape confidently.

Each module consists of a combination of reading materials, slides, assignments, and self-assessment quizzes to reinforce learning and assess students' understanding of the material covered. By the conclusion of this course, students will have developed a comprehensive understanding of blockchain technology and its diverse applications, empowering them to navigate the rapidly evolving digital landscape with confidence and expertise.

Below is a rough overview of the course structure, with a more detailed view on the following page:

Module 1	Finance Topics	5 units
Module 2	Digital Topics	5 units
Module 3	Technical Topics	5 units

Module 1: Finance Topics	1.1 Cryptocurrencies & the Blockchain Introduction to the concept of decentralised digital currencies and what gives them value.	Reading/Text
	1.2 Use Cases Introduction to potential use cases for blockchain technology. Understanding how to evaluate use cases.	Presentation
	1.3 Activity: Use Case Development Brainstorming and critically examining potential use cases to estimate feasibility.	Assignment
	1.4 Portfolio Management Understanding differences between various crypto-economic models, and understanding basics of portfolio building.	Presentation
	1.5 Assessment Module 1 Self/Administered Assessment covering the contents of Module 1 via multiple-choice test.	Assessment
Module 2: Digital Topics	2.1 Tokenization & Regulation Understanding dynamics between blockchain technology and various legal aspects.	Reading/Text
	2.2 Blockchain Payments A look at a simple crypto payment implementation.	Presentation
	2.3 Activity: ReFi Tokenized assets by example of tokenized carbon certificates.	Assignment
	2.4 Oracles, Data, GDPR	Presentation

	2.5 Assessment Module 2 Self/Administered Assessment covering the contents of Module 2 via multiple-choice test.	Assessment
Module 3: Technical Topics	3.1 Wallets, Security, and Web3 Custody considerations for Digital Assets.	Reading/Text
	3.2 Smart Contracts Introduction to smart contracts & decentralised applications.	Presentation
	3.3 Activity: Token Creation Guided deployment of ERC-20 token on Ethereum Testnet.	Assignment
	3.4 Consensus Protocols Proof of work, Proof of Stake, and alternative.	Presentation
	3.5 Assessment Module 3 Self/Administered Assessment covering the contents of Module 3 via multiple-choice test.	Assessment

Delivery, Structure, and Access

Course content of the BESIDE programme is primarily made available either in the form of an assigned reading (PDF Document) or in the form of a presentation (Slides). Additionally, each module has one assignment, which can be done individually outside the context of an interactive course with a trainer, but that is enhanced when done in a group environment with students discussing their results and peer-reviewing each other's assignments. As the last unit of each module, there is an assessment that covers some of the most important details covered in the given module. This assessment takes the form of a multiple-choice test consisting of 15 questions each.

All the relevant files can be found on the BESIDE e-learning platform. Content can be downloaded and may be used and replicated freely for educational purposes. Students are also able to use the platform in their learning experience, either alone or as part of a supervised in-person course.

Learning Outcomes & Time Requirements

The BESIDE course offers a structured exploration of essential concepts and practical applications within the blockchain ecosystem. Divided into three modules, the course caters to a broad audience, including professionals across various industries, technology enthusiasts, investors,

environmentalists, and legal experts. Through a systematic approach, learners gain insights into cryptocurrency basics, blockchain use cases, regulatory considerations, technical aspects, and portfolio management strategies. Self-assessment quizzes are integrated to evaluate understanding and reinforce key concepts. By the course's conclusion, participants will possess a comprehensive understanding of blockchain technology and its potential implications across different sectors.

Learning Outcomes Module 1

The first module introduces the basics of cryptocurrencies and blockchain technology. It covers topics such as the value proposition of cryptocurrencies, token economics, use cases for blockchain technology, and portfolio management strategies for digital assets.

Learning Outcomes Module 2

In this module, students delve deeper into the digital aspects of blockchain technology. They learn about tokenization, regulation surrounding digital assets, blockchain-based payments, tokenization in carbon offsetting, and GDPR implications of blockchain.

Learning Outcomes Module 3

The final module focuses on the underlying mechanisms of blockchain technology. Students learn about wallet security, Ethereum and smart contracts, token creation on the Ethereum network, and consensus protocols including Proof of Work and Proof of Stake.

Through the completion of these modules, participants will not only have acquired a robust understanding of blockchain technology but will also be equipped with the knowledge and skills necessary to critically evaluate its potential applications and navigate the evolving landscape of decentralised technologies with confidence.

The course consists of three main modules. Each module consists of 5 Learning Units: one Reading task, two slide decks, one self-assignment/task, and one self-assessment questionnaire. Each learning unit takes circa 30/40 minutes to complete.

Activities

There are two interactive unit types. Assignments and assessments. Assignments present students with a task that can either be done individually or collaboratively. Each module has a different

assignment that will contribute to students' learning journey. The following is a breakdown of the assignments found in the BESIDE course.

Assignment 1: Use Case Development

In this assignment, students are tasked with developing a hypothetical use case for blockchain technology in their industry. Building upon the foundational knowledge gained in Module 1, learners must critically analyse real-world scenarios and evaluate the benefits and challenges of implementing blockchain solutions. The assignment aims to assess students' understanding of blockchain use cases and their ability to apply theoretical concepts to practical situations.

Assignment 2: ReFi

For this assignment, students are required to research and create a concise report on tokenized carbon credits, an emerging application of blockchain technology in environmental sustainability efforts. By exploring the advantages, challenges, real-world applications, and potential future implications of tokenized carbon credits, learners gain insights into the intersection of technology and ecology, as well as the broader implications of blockchain beyond financial applications.

Assignment 3: Token Creation

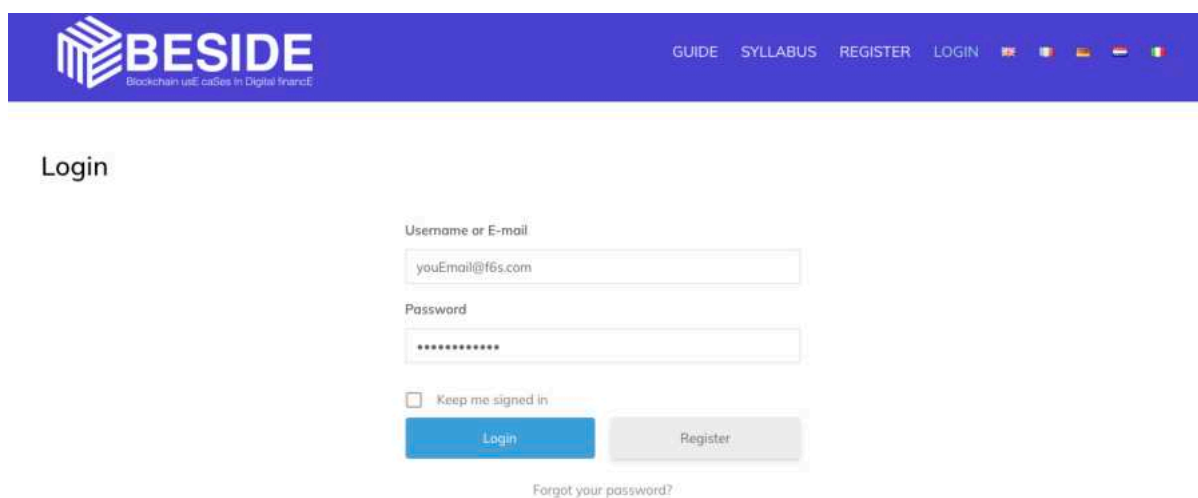
In the final assignment, students dive deep into the technical nuances of the Ethereum ecosystem by deploying their own ERC-20 token on the Ethereum network. Through this hands-on experience, learners gain practical knowledge of token standards, the functionalities provided by ERC-20 tokens, and the process of token deployment. The assignment not only reinforces theoretical concepts learned in Module 3 but also empowers students with the skills necessary to engage with blockchain technology on a technical level.

All assignments are provided in a way that they can be completed individually, outside of a guided course, however, they may easily be adapted to work well for active classroom participation. For assignment one, students could pitch potential use cases to their peers who critique the idea. For assignment two, students could collaborate in researching the topic of ReFi. For assignment three, students could deploy their own tokens and then send them amongst themselves. The assignments, as they are made available via the BESIDE platform, should be adapted to maximise learning effectiveness when conducting in-person training.

Facilitation Tips

Use of the e-learning platform

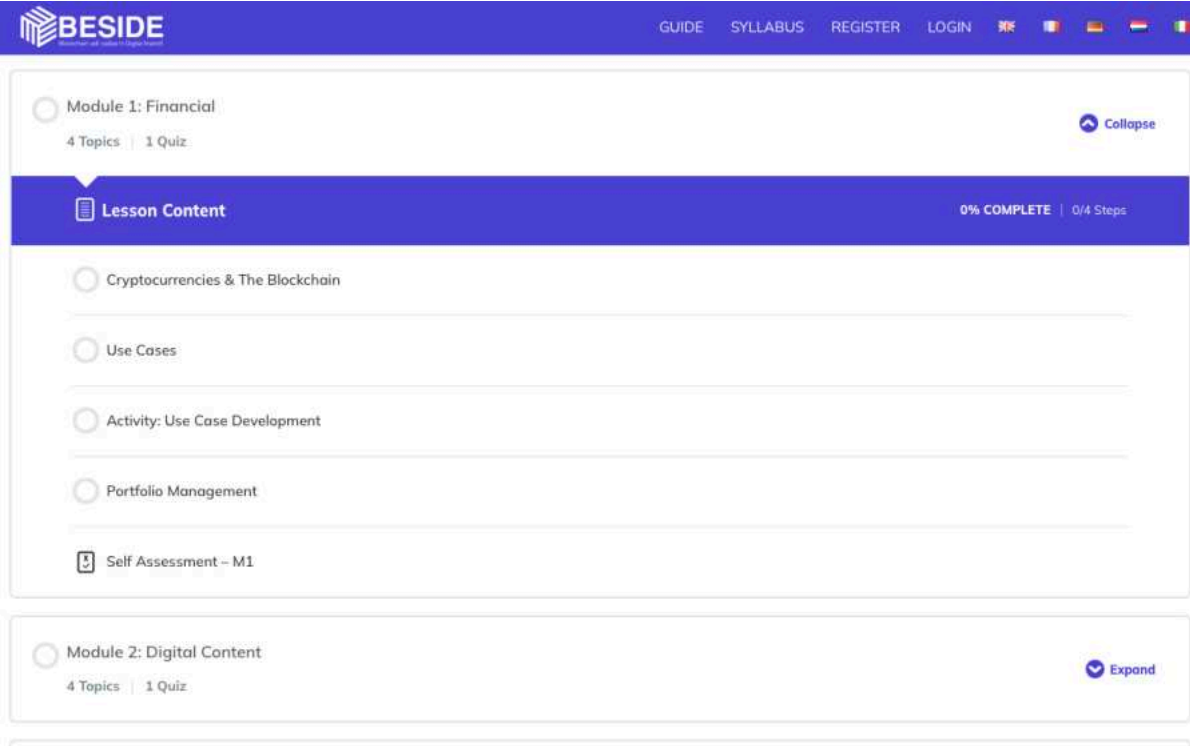
The BESIDE e-learning platform is available to anyone without cost. To access the platform visit besideproject.eu there you will find a link to register or sign in to the platform. To register simply enter your email address and select a password. User accounts allow users to save their progress, and upon completing the course issue a certificate of completion.



The screenshot shows the BESIDE login page. At the top, there is a blue navigation bar with the BESIDE logo on the left and links for GUIDE, SYLLABUS, REGISTER, and LOGIN on the right. Below the navigation bar, the word "Login" is displayed. The main content area contains a login form with the following elements:

- A text input field labeled "Username or E-mail" containing the text "youEmail@f6s.com".
- A text input field labeled "Password" containing a series of asterisks "*****".
- A checkbox labeled "Keep me signed in" which is currently unchecked.
- Two buttons: a blue "Login" button and a grey "Register" button.
- A link labeled "Forgot your password?" located below the buttons.

Upon logging in or signing up, users will see the course dashboard showing an overview of all modules and their respective units. The dashboard tracks the units that students marked as completed. To navigate to a specific module, students may just click it. It is, of course, recommended to start at the very first unit 1.1.



The screenshot displays the BESIDE e-learning platform interface. At the top, there is a navigation bar with the BESIDE logo and links for GUIDE, SYLLABUS, REGISTER, LOGIN, and language flags. Below the navigation bar, the main content area is divided into two sections. The first section is for 'Module 1: Financial', which includes 4 Topics and 1 Quiz. A 'Lesson Content' bar indicates 0% completion and 0/4 Steps. The topics listed are Cryptocurrencies & The Blockchain, Use Cases, Activity: Use Case Development, Portfolio Management, and Self Assessment - M1. The second section is for 'Module 2: Digital Content', which also includes 4 Topics and 1 Quiz, with an 'Expand' button.

As units and assessments are completed, they are marked as such in this overview page. The individual modules are also downloadable as .PDF files on their respective pages. This way the course could technically be administered without using the platform at all. All-in-all, the e-learning platform is designed to be as intuitive as possible. If you run into any issues or have any questions please feel free to reach out via our Email address info@besideproject.eu.

Online Facilitation

When utilising the BESIDE e-learning platform remotely or asynchronously, students will independently navigate the course and complete the various units. Assignments can be conducted interactively through the use of video conferencing, allowing students to engage with their peers and instructors in real-time discussions, presentations, and collaborative activities. The role of a trainer in this scenario will primarily focus on adding interactivity and fostering collaboration among learners.

In-Person Training

In-person training offers unique opportunities for collaboration, discussion, peer feedback, and hands-on activities that cannot be fully replicated online. Through face-to-face interactions, students can engage in dynamic discussions, exchange ideas, and share experiences in real-time, fostering a deeper

understanding of the subject matter. Collaborative projects and group activities allow students to work together, enhancing teamwork and communication skills. Instructors can provide immediate feedback, offer personalised assistance, and address questions or concerns in person, creating a supportive learning environment.

The BESIDE e-learning platform is designed with accessibility in mind. It is designed so that anyone can independently gain access to a condensed source of information about blockchain technology and digital assets. However, all the material made available is freely adaptable to fit in-person training as well. It is up to the trainers to make the assignments interactive and to present the information made available via slides or reading. For this, a solid understanding of the course content is required. Some examples of conducting interactive in-person assignments can be found in the section “Activities”. In addition to the guide, the recorded “training the trainers” seminar may be a helpful resource for prospective trainers.



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