Governance Framework

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Governance

This document presents the governance framework for the platform developed for George Brown College's Blockchain Development Course students. The platform offers a decentralized solution for course coordinators, faculty members, and students to collaborate, exchange feedback, and make informed decisions about the course. The platform comprises of three smart contracts; BCDV20.sol (special ERC20 token), BCDV721 (ERC721 standard contract), and governance.sol (governance framework contract), which provide a secure and transparent environment for stakeholders to participate in the governance process.

The aim of the platform is to provide a smart, transparent, and decentralized method for students and course coordinators to communicate and reach consensus on various course-related decisions. The course coordinator has the highest level of authority in the system and can appoint faculty members. Both faculty members and the coordinator can create proposals without requiring any tokens. However, students need to hold BCDV tokens to be eligible for voting and creating proposals. These tokens can be earned through attending lectures, participating in class activities, obtaining good exam scores, and more. The more BCDV tokens a student holds, the greater their voting power. This system incentivizes active student participation in the course.

In addition to voting on proposals, students can also ask questions by creating proposals. If the proposal receives enough votes, it will be executed. Students are encouraged to create proposals for enhancing the course delivery method. To prevent the creation of irrelevant proposals, a reward-penalty system is in place. Valid proposals can be voted for or against, while irrelevant proposals can be abstained from voting. If a proposal is deemed valid, the proposal creator will be rewarded with additional BCDV tokens, increasing their voting power. Conversely, if the consensus is to abstain from the proposal, a penalty will be issued, reducing the proposal creator's voting power for other proposals.

The platform also supports the issuance of ERC721 tokens, which serve as verifiable symbols of achievement on the blockchain. Faculty members or the course coordinator can issue these tokens to represent a student's excellent academic achievements, such as being a dean's list nominee, having the highest GPA, or winning a best project award.

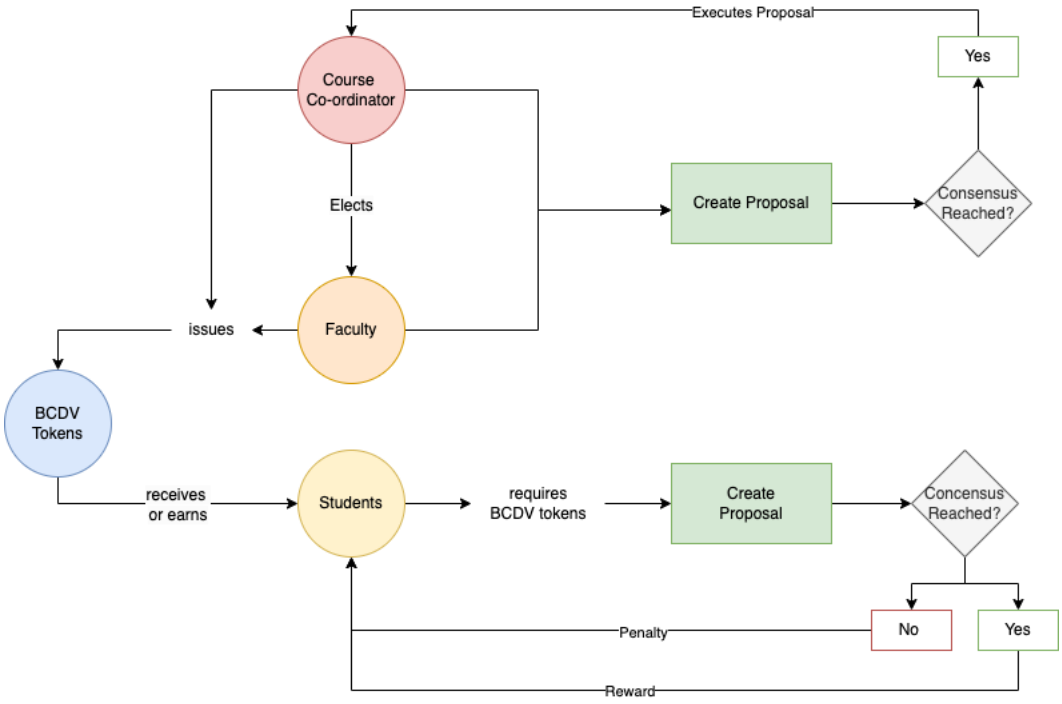

Figure 1: General overview of Framework

BCDV token

BCDV token is a conditionally transferable token. Where only the faculty or course coordinator can move or mint tokens to another wallet or address. Students are restricted from being able to transfer the tokens to any other wallet or address in order to ensure the integrity of the platform.

Glossary

Abstain: Choosing not to participate in the voting for a proposal.

BCDV: A ERC20 token standard-based token used by Governance model mentioned in this document. It is also the token used for voting on the platform. BCDV is a conditionally transferable token.

BCDV20.sol: It is the name of file containing smart contract for BCDV token.

BCDV721.sol: It is the name of file containing smart contract that allows Faculty and Course coordinator to issue ERC721 tokens for students that act as a verifiable digital achievement on the blockchain.

Conditionally-transferable-token: Holders of the token will not be able to transfer the token to another wallet or contract without meeting certain requirements.

Consensus: Consensus is achieved when all participants of the network agree on the order and content of the blocks in the blockchain.

Course Coordinator: Person responsible for overseeing the course and selecting course faculty members.

ERC20: ERC20 is a technical standard for creating tokens on the Ethereum blockchain.

ERC721: ERC721 is a non-fungible token (NFT) standard on the Ethereum blockchain, allowing for unique and indivisible tokens to be created and traded.

Faculty Member: Person responsible for teaching and conducting lectures in the course.

Governance: Governance refers to the set of rules, processes, and systems by which a group manages and controls its affairs.

Governance.sol: It is the name of file that contains smart contract for decentralized governance for the George Brown College's Blockchain Development Course.

NFT: NFT (Non-Fungible Token) is a unique digital asset that represents ownership or proof of authenticity of a specific item, such as a piece of artwork, a collectible, or a gaming item, on a blockchain network.

Proposal: Request for change made by a student or faculty member.

Student: Person enrolled in the course and participating in the governance of the course.

Roles and Responsibilities

1. **Students (Token Holders)**
    - Participate in voting by holding BCDV tokens.

- Attend lectures and complete in-class activities, quiz and assignments to earn BCDV tokens.
- Create proposals and vote on proposals.

2. **Faculty Members**
    - Teach and conduct lectures in the course
    - Faculty Members can issue new BCDV tokens and other ERC721 based achievements for students
    - Faculty members can take part in governance without use of BCDV token.
    - Faculty members can create new proposals or vote on existing proposals.
    - Faculty members are selected by Course Admin
3. **Course Coordinator**
    - Select course faculty members.
    - Oversee the course and its governance
    - Course Admin is responsible for setting and updating the responsibilities and requirements for students and faculty.
    - Course admin can propose new changes and updates for the course.
    - Can issue BCDV tokens for students.

Proposal procedures

Steps to create a proposal for Corse coordinator | Faculty:

- Write a proposal
- Submit the proposal
- Proposal is put to a vote
- If a majority of votes are received in favor of the proposal, it may be executed off-chain

Steps to create a proposal for Students:

- Write a proposal
- Submit the proposal (must hold BCDV token)
- Proposal is put to a vote

- If a majority of votes are received in favor of the proposal, student receives reward in BCDV.
- If consensus is to abstain from proposal, student is penalized with BCDV token deduction.
- Proposal may be executed off-chain or counter proposal can be created by faculty or course coordinator.

Voting Procedure:

- Each eligible voter casts their vote
- For a student, the number of BCDV tokens held determines their voting power
- For faculty and course coordinator voting power is predetermined.
- If a majority of votes are received in favor of the proposal, it is executed off-chain.