School: ..... Campus: .....

Academic Year: ..... Subject Name: ..... Subject Code: .....

Semester: ..... Program: ..... Branch: ..... Specialization: .....

Date: .....

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiement : Decentralized Identity – DID and Credential Demo

- **Objective/Aim:**

Creating a DID for a user

- Issuing a Verifiable Credential (VC) from an authorized issuer
- Verifying the credential using a verification portal
- Recording steps and observations

Apparatus/Software Used

1. MetaMask Wallet
2. Brave Web Browser
3. Polygon/ETH Testnet
4. DID & Credential Platform (e.g., **Veramo**, **SpruceID**, or any test DID portal**)
5. IPFS (optional, for decentralized storage)

Theory/Concept:

Decentralized Identity (DID):
A DID is a blockchain-anchored identifier owned by the user, not by a central authority. It allows self-sovereign identity management.

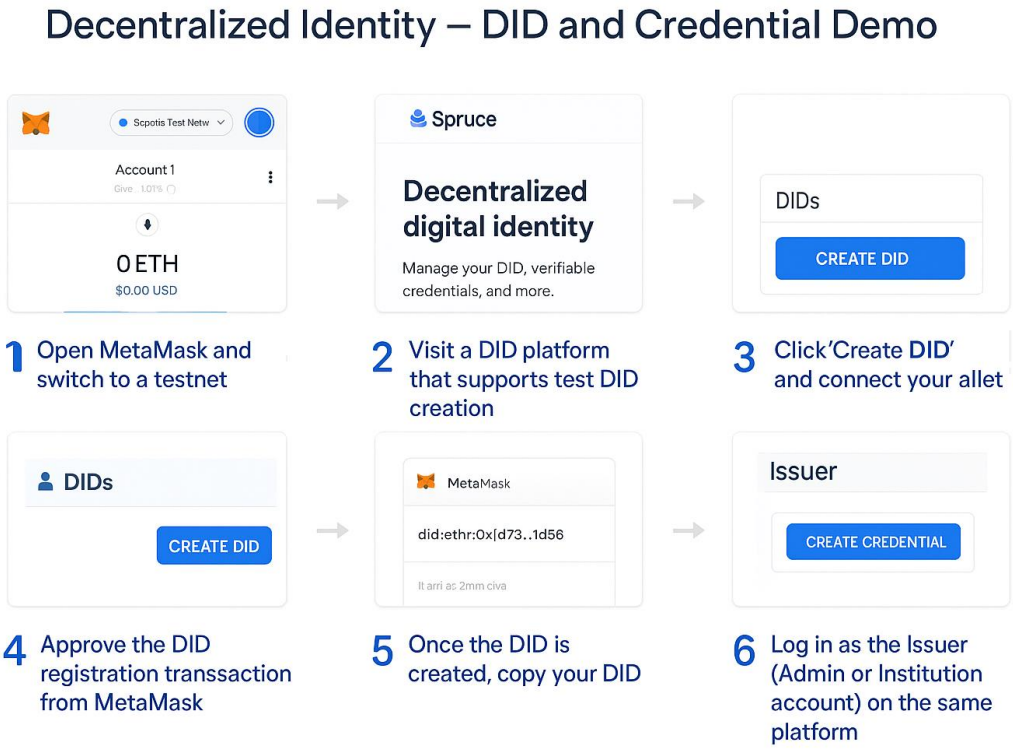
Verifiable Credential (VC):
A digital certificate issued by a trusted organization (institution, company, admin).
The VC contains:

- Subject DID (user)
- Issuer DID (institution/admin)
- Claims (Name, Certificate, Access Rights, etc.)
- Signature verifying authenticity

Flow:
Issuer DID → Issues credential → User stores credential → Verifier checks authenticity on-chain.

Procedure:

1. Open MetaMask and switch to a testnet (e.g., Polygon or Sepolia).
2. Visit a DID platform that supports test DID creation.
3. Click “Create DID” and connect your wallet.
4. Approve the DID registration transaction from MetaMask.
5. Once the DID is created, copy your DID (example: did:ethr:0xabc...).
6. Log in as the Issuer (Admin or Institution account) on the same platform.
7. Select “Create Credential” from the issuer dashboard.
8. Enter the subject DID (the DID you created earlier).
9. Fill in the credential details (example: "Blockchain Certificate", "KYC Demo", etc.).
10. Click Issue Credential and approve the blockchain transaction.
11. Ask a Verifier (or use a verification portal) to verify your credential.
12. Paste the credential or its hash/CID into the Verifier page.
13. Click Verify to confirm if the credential signature and issuer DID are valid.



Observation

Step No.	Observation
1	MetaMask successfully connected to the testnet and allowed DID creation.
2	A DID was generated and linked to the wallet address.
3	Issuer DID created a verifiable credential for the user.
4	Credential appeared in the user wallet/credential vault.
5	Verification portal correctly validated the credential signature and issuer identity**.**

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	**50**		

Signature of the Faculty:

Signature of the Student:

Name :