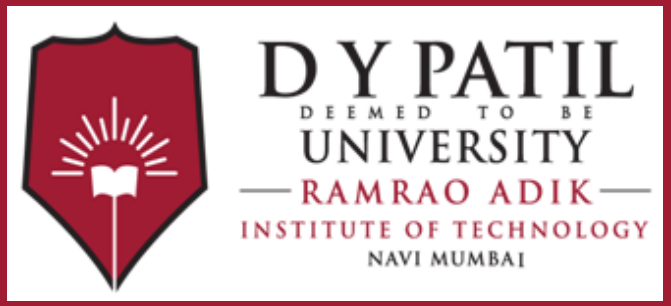


Subject Name: Information System

Unit No:01 Unit Name: Overview of Security Parameters

Faculty: Mrs. Bhavana Alte
Mr. Prathmesh Gunjgur

Security Assurance and Implementation.

Assurance in Security

- Assurance is about proving how much you can trust a system to behave as expected.
- It involves careful planning, analysis, and testing of the system to confirm that it meets security requirements

- **Key Concepts.**

- **1. Specification**
- **What it means**: A clear statement of how the system should work, either formally (mathematical rules) or informally (plain language).
- **Example**: A company might specify, *"Our system must block all unauthorized internet connections."*

- **2. Design**
- **What it means**: Translating the specifications into system components that can meet those requirements.
- **Example**: To block unauthorized internet access, the design may remove network cards and drivers so the system can't connect to the internet.

- **3. Implementation**
- **What it means**: Turning the design into the actual system (programming, hardware setup). This step ensures the system behaves as specified.
- **Example**: A software program is developed to ensure users must log in with a strong password.

Challenges in Assurance

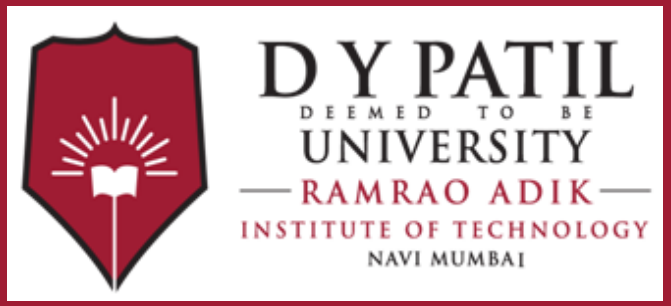
- **Complexity**
- Programs are large and complicated, making it hard to verify every detail.
- Example: If a system depends on hardware working perfectly, but the hardware fails, the system may not meet specifications.

- **Errors in Tools**
- Bugs in compilers or tools can introduce errors.
- Example: If a program is supposed to add numbers but the compiler makes a mistake, the result won't be correct.

- **Testing vs. Formal Proof**
- **Formal proof**: Verifying every part of the system mathematically, which is time-consuming.
- **Testing**: Running programs with different inputs to check for errors.
- **Example**: Testing a login system with fake passwords to ensure unauthorized users are blocked.

Why is Assurance Important?

- Assurance helps eliminate errors and clarify how the system should work, building trust in its security and functionality.
- **Example**: A safety-sealed medicine bottle assures customers that the medicine inside is safe. Similarly, assurance in computers ensures systems perform securely and reliably.


D Y PATIL
DEEMED TO BE
UNIVERSITY
RAMRAO ADIK
INSTITUTE OF TECHNOLOGY
NAVI MUMBAI

Thank You