Digital Security

The most promising career choice for Engineering Aspirants
Basic JEE Math

Primes
- What are prime numbers?
- How to find them?

Roots/Zeros
- Roots of a polynomial?
- How to find them?

Polynomials
- What are polynomials?
- How to store them?

Matrices
- How to store them?
- What do they mean?

How do these help in the digital world?
- Does abstract thinking have real applications?
Industry Impacts

**Healthcare**
Robust cybersecurity crucial for protecting patient data, ensuring care continuity.

**Vehicular Communication**
Self-driving vehicles highly vulnerable, requiring advanced cybersecurity for safe navigation.

**Banking**
Banks investing heavily in cybersecurity to secure sensitive financial transactions.

**Manufacturing**
Manufacturers must guard against cyber threats, software vulnerability, info theft.

**Law Enforcement**
Increasing reliance on cybersecurity experts to tackle growing cyber threats.

**Online Retailing**
Firewall, antivirus software, expert guidance essential for detecting online threats.
Rising Need

Ransomware Payments made Globally

$550M  \quad 2x \quad $1.1B

2022  \quad 2023

3.5 Million  \quad \uparrow

In Global security workforce by 2025

By 2050

Smart homes with significantly higher weak access points (smart devices)

In a hyperconnected world, cybercriminal threats only multiply

UK Electoral Commission hack exposed data of 40 million voters

The Times of India / Aug 9, 2023, 18:09 IST

Russian Ransomware Group Breached Federal Agencies in Cyberattack

The New York Times

Marriott Hotels fined £18.4m for data breach that hit millions

BBC / 30 October 2020

Thousands of Microsoft Customers May Have Been Victims of Hack Tied to China

The New York Times
**AI Dominance**
AI/ML systems will drive proactive threat detection, automated response, predictive analytics

**Hacker Proliferation**
More skilled hackers leveraging automated scripts to find vulnerabilities constantly

**Develop Talent**
Companies investing in cybersecurity training, to build expertise

**USB Threats**
USB devices increasingly targeted for industrial malware attacks

**Cyber Warfare**
Nations fortifying critical infrastructure against cyber attacks & digital intrusions

**TODAY**

**2030**
Skills & Career Opportunities

- Intrusion Detection
- Black Hat Thinker
- Risk Analysis and Mitigation
- Cloud Security
- Malware Analysis and Mitigation
- Programming

- Cryptographer
- Security Analyst
- Security Engineer
- Security Consultant
- Security Architect
- Chief Information Security Officer
- Chief Information Security Officer
Global Job Prospects

**Increased Upper Management Positions**
By 2026, 70% of boards will include one member with cybersecurity expertise

**Higher Expenditure on Cybersecurity**
- 60% of firms find it difficult to recruit Cybersecurity talent
- 50%+ have difficulty retaining them
- Average Cybersecurity salary sits at $240K
- Wage inflation + Worker shortage should help boost this figure

**Rising Demand for Specialized Skills**
Demand for application and cloud security skills will grow by 164% and 115% in the next five years

**Blended Roles and Responsibilities**
Shift left principles involve developers in early cybersecurity measures, enhancing security

**Takeaway Focus**

- **Advanced Biometrics**
- **Increased Ransomware Threats**
- **Improved supply chain security**
- **Safeguard remote access & USB**
- **Strong Cybersecurity Skills**
- **Role of AI**
- **Curb large scale malicious actors**
- **Decreasing Data Breaches**
- **Better State of Passwords**
Trends & Impact

AI/ML Dominate Defense
AI/ML systems proactively detect threats, enable real-time defense

Quantum Computing Threats
QC threatens current encryption, requiring quantum-resistant cryptography

IoT Priority
IoT proliferation increases attack surfaces, demanding robust IoT security

5G & Edge Computing
5G and edge computing introduce new vulnerabilities to address

Cyber-Physical Attacks
Critical infrastructure faces rising cyber-physical attacks from adversaries

Cybersecurity becomes enterprise-wide strategic priority in complex digital landscape
IIT Kanpur Incubated Startups

In the Cybersecurity Space

3iHub

trential

Treacle Tech
India’s Startup Boom

**SEQURETEK**
Comprehensive cybersecurity solutions for businesses

- $8M - Series A
- 2023
- 250+ employees

**Com QinZ**
Real time threat detection and responses using AI/ML

- $200K - Seed Funding
- 2022
- 20+ employees

**CloudSEK**
Cloud Security for protecting vital information

- $7M - Series A
- 2022
- 100+ employees

**SecureThings**
ML based cybersecurity for connected vehicles

- $3.5M - Pre-Series A
- 2022
- 25+ employees

**Wi-Jungle**
AI powered unified network management for enterprises CySe

- $22M - Seed valuation
- 2022
- 100+ employees

Indian Cybersecurity Space
Thank you