



Course Overview

NIELIT 'A' level course of NIELIT (DOEACC) Scheme is equivalent to an **Advance Level Course in Computer Applications**. Students can acquire this qualification by undergoing this course and passing the examination conducted by NIELIT. After completion of 'A' Level course, students can further enroll for next level IT course of NIELIT 'B' level.

Duration: 2 Year (1590 Hours)

Eligibility: 'O' Level/ Graduation

NSQF Level: 6

Objective of the 'A' Level Course

- Freelancer (For self-employed)
- Full Stack Developer
- Data Scientist/Analyst
- IoT Architect
- IoT Developer
- Business Intelligence Analyst
- Information Security Analyst
- Training Faculty

Note: Diploma of 'A' Level is valid in **Haryana Govt.** as (DHBVNL, Haryana Police, SSC, HAU, HUDA etc.), FCI, AICTE, A.I.U., U.P.S.C., Staff Selection Commission, Kendriya Vidyalaya, Parliament of India, Insurance Cos., Banks, Railway & **all other Central & State Govt. Deptt.** etc. for the purpose of employment.

Syllabus for 'A' Level Course -

Module 1: A1-R5: IT Tools & Basics of Networks

- Introduction to Computer
- Introduction to Operating System
- Word Processing
- Spreadsheet
- Presentation
- Introduction to Internet and WWW
- E-mail, Social Networking and e-Governance Services
- Digital Financial Tools and Applications
- Overview of Future skills and Cyber Security

Module 2: A2-R5: Web Designing & Publishing

- Introduction to Web Design
- Editors
- HTML
- CSS
- CSS Framework
- JavaScript
- Angular JS
- Photo Editor
 - Photoshop
- Web Publishing and Browsing
 - Publish
 - Hosting

Module 3: A3-R5: Programming and Problem Solving through Python Language

- Introduction to Programming
- Algorithms and Flowcharts to Solve Problems
- Introduction to Python
- Operators, Expressions and Python Statements
- Sequence Data Types
- Functions
- File Processing
- Scope and Modules
- NumPy Basics

Module 4: A4-R5: Introduction to Internet of Things (IoT) and its Applications

- Introduction to Internet of Things applications - Devices, Protocols, Communication model.
- Things and Connections
- Sensors, Actuators and Microcontrollers
- Building IoT applications
- Security and Future of IoT ecosystem
- Soft Skills-Personality Development

Module 5: A5-R5: Data Structure Through Object Oriented Programming Language

- Object Oriented Concepts
- Basics of C++, Classes and Objects
- Analysis of Algorithm
- Searching and Sorting
- Elementary Data Structures: Arrays, Linked Lists
- Stacks and Queues
- Trees
- Graphs

Module 6: A6-R5: Computer Organization and Operating System

- Basic Structure of Computers
- Computer Arithmetic Operations
- Central Processing Unit and Instructions
- Memory Organization
- I/O Organization
- Operating Systems Overview
- Linux Basics
- Process Management and Shell Script
- Users, Groups and Permissions
- Standard I/O and Pipes
- Finding and processing files

Module 7: A7-R5: Databases Technologies

- An Overview of the Database Management System
- Architecture of Database System
- Relational Database Management System (RDBMS)
- Database Design
- Maria DB
- Manipulating Data with MariaDB
- NoSQL Database Technologies
- Selecting Right Database

Module 8: A8-R5-Systems Analysis, Design and Testing

- Introduction
- Requirement Gathering and Feasibility Analysis
- Structured Analysis
- Structured Design
- Object-Oriented Modelling Using UML
- Testing, System Implementation and Maintenance, Other Software Development Approaches

Module 9: A9.3-R5-Network Management

- Introduction to Computer Networks
- Introduction: Networks Layers / Models
- Physical Layer
- Data Link Layer
- Network Layer
- Transport Layer
- Congestion Control
- Application Layer
- Networking Devices
- Fundamentals of Mobile Communication

Module 10: A10.3-R5- Information Security Management

- Network Fundamentals
- Introduction to cyber security and Attacks
- Cryptography
- Network Security and countermeasures
- Web Server and Application Security
- Security Auditing
- Cyber Law and IT Act 2000
- Cyber Forensics