Computer Applications (Junior Software Developer)

SYLLABUS/ CURRICULUM

Entry Qualification: 10th Pass **Level:** 4

This program is aimed at training candidates for the job of a "Junior Software Developer", in the "IT - ITeS" Sector/Industry" aims at building the following key competencies amongst the learner:

1. Assist in performing software construction and software testing entry-level tasks in the IT Services industry	2. Manage your work to meet requirements
3. Work effectively with Colleagues	4. Maintain Healthy, safe and secure working environment
5. Provide data / information in standard formats	6. Develop your knowledge, skills and competence

This course encompasses 06 out of 06 National Occupational Standards (NOS) of "Junior Software Developer" Qualification Pack issued by "IT-ITeS".

S. No	Topic	Duration (in hours) (Self Learning + Theory + Practical)	Objectives	NOS
	Module 1			
1	Computer concepts and Networking	16 (10 + 4 + 2)	• Classify the generation of computers • Explain data communication • Types of networking topology • Discuss the basics of Internet • Review the requirement of computer support infrastructure (UPS, AC systems, DG)	**SSC/N0506**
2	Computer software	21 (15 + 3 + 3)	• Define system software and application software • Explain concept of open source • Types of operating system	**SSC/N0506**
3	Basics of Data management	29 (20 + 4 + 5)	• Define data • Differentiate between	**SSC/N9004**

			data and information • Discuss data mining and data warehousing • Explain big data • Analyzing the data	
4	Information Security	20 (15 + 2 + 3)	• Discuss cyber security • Explain network security • Secure your system	**SSC/N0506**
5	E-Governance	25 (15 + 4 + 6)	• Define e-Governance • Explore digital payment methods • Identify mobile apps for e-Governance • Differentiate between e-commerce and m-commerce	**SSC/N0506**
6	Social networking	28 (15 + 5 + 8)	• Define social networking • List the advantages and disadvantages of social networking • Explain social media tools • Discuss communication tools	**SSC/N0506**
7	Office Productivity tools	36 (15 + 8 +13)	• Discuss OpenOffice • Use OpenOffice writer • Acquaint the skills of calc • Acquaint the skills of impress	**SSC/N9004** **SSC/N9004**
	Module 2			
1	Concepts of Database Management system	35 (15 + 6 + 14)	• Explain database management systems • Define relational database management systems • Create tables, forms, queries and reports • Use constraints	**SSC/N9004**
2	Introduction to mySQL	40 (15 + 7 + 18)	• Explain query language • Create tables • Create forms, queries and reports	**SSC/N9004**

3	Concepts of Programming Methodology	45 (20 + 7 + 18)	• Simplify expressions • Use of proper names for identifiers • Prepare document and maintaining the program • Understand the problem • Identify arithmetic and logical operations required for the solution • Use algorithms and flow charts	**SSC/N0506**
4	Basics of Object Oriented Programming	46 (20 + 8 + 18)	• Define Data Encapsulation • Explain Data hiding • Describe Class and objects • Explain Constructor and destructor • Discuss Inheritance and Polymorphism	**SSC/N0506**
5	Introduction to Python	46 (20 + 8 + 18)	• Use of interactive and script mode • Define data types • Use of basic operators • Define variables • Use expressions • Create statements • Discuss Python statements and loops • Use dictionaries	**SSC/N0506**
6	Programming with Python	51 (25 + 8 + 18)	• List the functions • Define list, stack and queues • Handle errors and exceptions • Read / write from / to file • Access database	**SSC/N0506**
7	Workplace practices	42 (20 + 6 + 16)	• Share resource • Manage Time • Communicate properly • Work Ethics • Use resources efficiently • Work with colleagues to integrate their work effectively with them • Report any hazards that one is not competent to	**SSC/N0506** **SSC/N9001** **SSC/N9002** **SSC/N9003** **SSC/N9004**

			deal with to the relevant person in line with organizational procedures and warn other people who may be affected • Develop your knowledge, skills and competence	

Total Programme Duration: **480 Hours (240 hrs self learning + 80 hrs Theory + 160 hrs Practical)**

Accreditation norms:

For a batch size of 20 students, the following requirements and tools are required.

A. Hardware Requirement:

- 10 computers (Intel core i3 or i5 processor).
- One Printer LaserJet
- Internet connection & UPS

B. Software Requirement: Licensed versions of following software

- OpenOffice
- Python
- MySQL
- Browser
- Email Client and chat tools
- Antivirus

C. Qualification of Faculty:

One permanent faculty is required for taking theory as well as practical class. Following is the essential qualification for the faculty.

M.Sc (Computer Science or IT) / MCA / M.Tech (IT) from recognized university or institute.

Or

PGDCA / 'A' level from DOEACC or equivalent with two years experience from any recognized university or institute.

D. Batch Size: A centre will admit 20 students in a batch maximum intake should be 5 batches.

E. Space requirements: The institute should have two class rooms one for practical and one for theory. Rooms should be well ventilated and properly lighted. The size of practical room should be 225 sq. Feet and theory room should be 200 sq.feet.

General: Comfortable seats with adequate lighting, controlled temperature and acoustics for training and learning

- White Board, Markers and Eraser
- Projector with screen
- Flip chart with markers
- Faculty's PC/Laptop with latest configuration and internet connection
- Supporting software / applications for projecting audio, video, recording
- Presentation Tools to support learning activities:
    - Intranet
    - Email
    - IMs
    - Learning management system e.g. Moodle, Blackboard to enable blended learning

- Microphone / voice system for lecture and class activities
- Stationery kit – Staples, Glue, Chart Paper, Sketch Pens, Paint Box, Scale, A4 Sheets

a) **Scheme of Examination**

S. No.	Name of the subject / Modules	Time (in hrs.)		Marks			Total
		Theory	Practical	Theory	Practical	Internal Assessment	
1	Computer Applications	2	2	40	40	20	100

b) **Pass Criteria**

Name of the subject	Certification criteria (percentage)			
	Theory	Practical	Internal Assessment	Aggregate in each paper module
Computer Applications	50	50	50	50