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DEPARTMENT OF EMPLOYMENT AND TRAINING

SYLLABUS FOR INDUSTRIAL SCHOOLS

TRADE : ADVANCED PROGRAMMING AND SYSTEM ANALYSIS

SYLLABUS FOR ADVANCED PROGRAMMING AND SYSTEM ANALYSIS

UNDER CODE OF REGULATION FOR INDUSTRIAL SCHOOLS

AS APPROVED BY

DEPARTMENT OF EMPLOYMENT AND TRAINING

CHEPAUK

CHENNAI – 600 005.

LIST OF COMMITTEE MEMBERS FOR THE TRADE OF ADVANCED PROGRAMMING AND SYSTEM ANALYSIS

1. Thiru. T.Sundararajan,
   Regional Joint Director, Chennai Region

2. Thiru.P. Dwaraka
   Assistant Director of Training

3. Tmt. V. Shanthi
   Assistant Training Officer,
   Computer Operator and Programming Assistant
   Govt. Industrial Training Institute, Ambattur

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5. Tmt. D.Thulasi
   Assistant Training Officer,
   Computer Operator and Programming Assistant
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COURSE DETAILS

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Name of Trade	**: ADVANCED PROGRAMMING AND SYSTEM ANALYSIS**
Qualification	**: 10TH PASS**
Age	**: 14-40 Years**
Duration	**: 1 Year**
Number of Trainees	**: 20**
Number of Practical hours	**: 32 hrs. per week**
Number of Theory Hours	**: 12 hrs. per week**
Space Required	
Workshop	**: 300 sq. feet**
ClassRoom	**: 200 sq. feet**
Power Required in KW	**: 3 k.w.**

Sno	Week No	Theory	Practical
1	1	Introduction to computers : Definition of computer. Simple fundamental concepts. Generation of computer. Classification/Types of computer. Characteristics of computers	Identify the various Parts of computer and their Connections.
2	2	Functional Block Diagram of Computer. Input, Processing, Output, Functions of ALU, control, storage, input and output devices. Application of computer: Viz. Railway, Electricity/Medical etc.,	System Booting
3	3	Data Concepts. Bit, byte etc., Representation of data: Binary, Binary addition and subtraction using 1's, 2's complement , octal, hexadecimal, ASCII, EBCDIC, Positive versus, negative integers, floating point numbers.	Dos External Commands
4	4	Hardware Concepts: Input devices- On line & off line input devices. Different types of scanners. Digital Camera. Output devices-Impact, non Impact printers, Plotters.	Handling & Trouble shooting of the given Input & output devices
5	5	Memory devices: RAM, ROM, EPROM, EPROM, ECCRAM, EDORAM, SDRAM and their specifications, memory storage locations, use of memory addressing in programming	Knowing about different types of systems like AT, XT, Pentium Processor & their Speed
6	6	Secondary memory Devices: Floppy disk, winchester disk (removable/fixed), concepts of Cylinders , tracks& sectors, advantages and limitation of secondary storage devices. Access time, Access methods (Sequential , direct, indexed) & CD-ROM, DVD.	Copying / Writing data from one media to other medias
7	7	Introduction to various Operating System: Dos(Internal & External commands) ,Unix, Linux, etc.,	Unix commands

8	8	Windows Operating System : Start Windows. Using the Program Manager. Using Desktop Icons. File management through Windows. Using Essential Accessories	Working with desktop Creating folders Installing of Software & Hardware
9	9	Office Automation Packages: **MS-WORD:-** **Documents**:- Text Typing ,deleting editing Opening/ Creating , Saving/Quitting . Cursor Control. Printing Documents. **Formatting: -** Characters(Bold, Italics, etc.,) Paragraphs. Moving and Copying text. Bullets, Numbering. Background Colors, Page setup, Page size , Margin setting, Borders & shading. Header & Footer. News Paper column setting, Tab setting, Change case , Word count, page breaks, column break, print preview.	Creating Documents & performing Editing & Formatting & view menu
10	10	Inserting features:- Graphics, Formatting Graphics, text box.. Images, clipart images, chart. Word Art, System Time, date Table, Formula. Find and replace the text. Spell checking & Grammar checking. Mail merge. Labels, Envelops, Letter wizard.	In a document inserting graphics, text box, word art, Spell checking Performing Formula by using Mark list Creating Mail Merge Creating Labels & Envelops
11	11	**MS-EXCEL**:- Data Entry in cells, entry of numbers, text and formulae. Moving data around in a worksheet. Selecting data range. Using the Interface (Toolbars, Menus). Editing basics. Formatting and calculations. Calculations and worksheets- Using Autofill. Worksheet printing.	Working with cell, rows and columns Performing Fill, Calculations, And conditional statements
12	12	Working with Graphs and Charts. Creating and formatting . Printing. Database Management in worksheet: Finding records with data form. Adding/deleting records.	Inserting Chart, Graphs – Formatting Graphs Printing Charts Working with Filter & Advanced Filters

		Filtering records in a worksheet.	
13	13	**MS-VISUAL FOXPRO**: Introduction to FOXPRO Features of FOXPRO Create a new table, database & Design view. Fields data types, Length, etc., Table wizard. Import wizard. Adding records, Inserting new Records& columns. Deleting Records and table. Hide and unhide columns. Filtering- Sorting- records. Find and replace the data.	Creating Tables Performing some Access table commands Sorting Table
14	14	Create queries, Run queries. Create forms- Form wizards-Design-Auto Form. Using Form Tools, setting properties, Writing code, Run the form. Create report-Save & Run the Report. Set relation between two tables. Page wizard-Auto page.	Creating forms – Formatting a Form – Printing the forms Creating Reports – Quick Report – Run a report – Printing
15	15	**Simple Programming** Techniques in FOXPRO Programming Commands like IF, DO WHILE, FOR, WHILE.	Programming in FOXPRO
16	16	Programming In FOXPRO	Programming In FOXPRO
17	17	Programming In FOXPRO	Programming In FOXPRO
18	18	**SYSTEM ANALYSIS** System concepts and information system environment Introduction – Definition – characteristics of system – organization – interaction – interdependence – integration – central objective.	Ex A Dynamic Personnel Information System Model
19	19	**Elements of system** : Outputs and Inputs, Processor control Feedback- Environment – boundaries and interfaces Types of system – physical or abstract systems – open or closed system – Man made Information system	Ex Creating Gantt chart, PERT chart
20	20	**System Planning and the Initial Investigation** Introduction – bases for planning in systems analysis: dimensions of planning	Ex Case Scenario – Banking or Accounting Environment

		- initial investigation – need identification – determining the user's information requirements	
21	21	**Background analysis** – fact finding. Fact analysis – determination of feasibility.	Ex Creating User's Request form
22	22	**Information Gathering** Introduction – information about staff – work flow. Information – gathering tools – procedures and forms – on-site observation – questionnaires. Types of interviews	Ex Creating Organization Chart, Questionnaire
23	23	**The tools of structured analysis** Introduction – structured analysis – data flow diagram – data dictionary – decision tree and structured English. Decision tables – pros and cons of each tool.	Ex Creating Data Dictionary entries in English Creating Data flow diagrams for travel agency making round trip reservations for two to Hawaii
24	24	**Feasibility Study** Introduction – system performance definition – statement of constraints – identification of specific system objectives – description – of outputs. – steps in feasibility	Ex Working on procedure for opening new accounts Visitation card Rental form History card Daily work
25	25	**Cost / benefits analysis** Introduction – data analysis – cost /benefits analysis - categories – procedures – determination – system proposal.	Ex Creating Break even chart Cash flow analysis Feasibility reports
26	26	**C++** History of C++ - Constants – variables – data types – operator – expressions – Input / Output statements	Writing simple programs in C++
27	27	**Conditional Statements** IF- ELSE IF – NESTED IF- LADDER ELSE IF	Writing program in IF conditions
28	28	**Looping Statements** WHILE – DO WHILE – FOR Statement – infinite looping	Writing program in looping statements
29	29	**Arrays** – character handling **Functions** User defined functions	Writing program in ARRAY & FUNCTIONS
30	30	**Dynamic Data structures** – malloc,	Writing program in

		calloc	MALLOC & CALLOC
31	31	**CLASSES** – Introduction Function overloading	Writing program in CLASSES
32	32	**Recursion** **OBJECTS** - Introduction Objects	Writing program in OBJECTS Writing program in Recursion
33	33	**Constructors & Destructors**	Writing program in Constructors & destructor
34	34	**File Handling** Sequential , Random access file , indexed sequential file	Writing program in FILE
35	35	**OOPS** – Introduction Polymorphisms **Inheritance**	Writing program in Polymorphism writing program in Inheritance
36	36	**BASIC INTERNET TOOLS** Electronic Mail -Telnet, Rlogin -File Transfer Protocol (FTP) and Archie - UseNet News -Gopher and Veronica - ``Netiquette" and Privacy - Ethics on the Internet - Etiquette on the Internet **WORLD WIDE WEB (WWW)** Browsers (Lynx, Netscape and Mosaic) - Search Engines and Indices (Lycos, Yahoo, InfoSeek, etc.) -Servers (HTTP Server - CERN, NCSA) -The HTTP Protocol	Ex Hands on Internet Getting information from internet
37	37	**HYPERTEXT MARKUP LANGUAGE (HTML)** Basic Markup Tags - Hyperlinks and Anchors -Building WWW Pages	Creating Web pages using HTML tags
38	38	**ADVANCED HTML** Incorporating Graphics, Sound, Video, etc. -Image types (GIF and JPEG) - Creating images and Scanning	Inserting images, graphics, video in web pages
39	39	**CGI AND ADVANCED HTML** The Common Gateway Interface (CGI) - Scripting languages -Creating Forms in HTML Network Security Basic security models -Private Key Encryption -Public Key Encryption (PGP, RSA)	Web pages in Advanced HTML
40	40	**MS FRONT PAGE** Overview	Working With MS FRONT PAGE – creating web pages in front page
41	41	**JAVA**	Creating simple programs

		Overview of JAVA – Variables – Literals – Identifiers – Data types - Operators	in JAVA
42	42	**Conditional Statements** If – switch – while – do while – for – infinite loops – break – continue statements	By using conditional statements creating programs
43	43	**Strings –** string length – literals – concatenation – conversion – comparisons – searching – modifying - buffer **Arrays –** one dimensional – two dimensional – multi dimensional	Programs in strings Programs in Arrays
44	44	**CLASS** Class Fundamentals – declaring objects – methods - Constructors Keywords – A stack	Programs in Class
45	45	**OBJECTS** – returning of objects – static – arrays revisited **Recursion**	Programs in Objects
46	46	**AN OVERVIEW OF INHERITANCES** Dynamic method – abstract classes – object class	
47	47	**FUTURE INTERNET TRENDS** On-Line Services - Privatization - Payment Mechanisms (First Virtual, E-Cash) - Video Conferencing	Performing online shopping, ticket reservation – rail – air Sending Video on mail to others
48	48	**CLASS PROJECT PRESENTATIONS** Future Trends, Continued - Project teams demonstrate WWW pages	Project in – Building web sites – for firms
49	49	REVISION	REVISION
50	50	TEST – FIRST - SIX MONTH	TEST – FIRST - SIX MONTH
51	51	TEST SEVEN – ELEVENTH MONTH	TEST SEVEN – ELEVENTH MONTH
52	52	FINAL TEST	FINAL TEST

Industrial School

Long Term Trade - Syllabus – Revised

Name of the Trade: ADVANCED PROGRAMMING AND SYSTEM ANALYSIS

Space required:

Computer / Lab	:	300 Sqft.
Class Room	:	200 Sq.ft.
Trade Theory	:	NO CHANGE
Trade Practical	:	NO CHANGE

TOOLS AND EQUIPMENT FOR THE TRADE ADVANCED PROGRAMMING AND SYSTEM ANALYSIS

HARDWARE REQUIREMENTS

S/NO	NAME OF THE ITEM	QUANTITY REVISED
1	**SERVER** **Pentium Processor 4** **256 MB RAM** **40 GB HDD** **1.44 MB FDD** **SVGA COLOUR MONITOR 14"** **101 WINDOWS KEYBOARD, INTELLI MOUSE, INTERNAL MODEM** **16 BIT ETHERNET CARD** **INTERNET CONNECTION** **17 NODES with CD writer**	**01**
2	**WORK STATION** **Pentium Processor 4** **256 MB RAM** **2 GB HDD** **1.44 MB FDD** **SVGA COLOUR MONITOR 14"** **101 WINDOWS KEYBOARD, INTELLI MOUSE, INTERNAL MODEM** **16 BIT ETHERNET CARD WITH INTERNET CONNECTION**	**04**

3	5 KVA ONLINE UPS	01
4	HP LASER JET PRINTER (COLOUR)	01
5	DOT MATRIX PRINTER	01
6	OPTICAL SCANNER	01
7	FLOPPY DISK 3 1/2"	100
8	REWRITABLE CD's	20
9	VACCUM CLEANER	01
10	CHAIR AND TABLE FOR INSTRUCTOR	01 SET
11	COMPUTER TABLE SUNMICA TOP 1050 X 650 X 750 MM SLIDING TRAY FOR KEYBOARD AND ONE SHELF FOR STORAGE	05
12	OPERATOR CHAIR	10
13	ROOM THERMOMETER	01
14	DOOR MAT	01
15	WALL CLOCK	01
16	PRINTER TABLE 650X500X750 MM	02
17	WINDOW TYPE AC 1.5 TONS WITH STABILIZER	03
18	STORAGE CABINET 600X700X450 MM	01
19	STUDENTS SHOE RACK	01
20	16 PORT HUB FOR LAN.	01
21	RJ45 CONNECTORS CAT 5 CABLE FOR LAN	01
22	NOVELL NETWARE 3.12 OR HIGHER VERSION 20 USER	01
	SOFTWARE REQUIREMENTS	
S.No	Required Items	Quantity
1	MS-DOS OS (HIGHER VERSION)	01
2	WINDOWS XP	10
3	MS OFFICE	01
4	VISUAL STUDIO LATEST VERSION	01
5	SCO UNIX	01
6	SQL SERVER	01

ACHIEVEMENTS

1. Learning Fundamentals of Computer.
2. Developing Programming Knowledge
3. Gaining Office Automation works.
4. Obtaining Experience on working in various Operating Platforms.
5. Experience on latest Technology.
6. Knowledge in computer Hardware & Software Installation.
7. Experience through Project Development to Focus the Skill
8. Create a Web design.
9. To Develop Programs from planning and flow charting to Coding and debugging.
10. Learning VISUAL FOXPRO, C++, JAVA
11. Provide Hands-on- Experience on PC's
12. Knowledge in Computer Hardware Maintenance.