

# ***BACHELOR OF VOCATION***

**(SOFTWARE DEVELOPMENT AND SYSTEM ADMINISTRATION)**

**SYLLABUS - 2017**



## **ST. JOSEPH'S COLLEGE (AUTONOMOUS)**

Special Heritage Status Awarded by UGC  
Accredited at "A" Grade (3rd Cycle) by NAAC  
College with Potential for Excellence by UGC

**TIRUCHIRAPPALLI – 620 002, INDIA**

**COURSE PATTERN**  
**B. VOC. PROGRAMME - SOFTWARE DEVELOPMENT AND SYSTEM ADMINISTRATION**

**NSQF LEVEL 4: Junior Software Developer**

Sem	Part	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
I	GE	Language-I	17USS110001	Theory	2	-	2
	GE	Language II: English – I	17USS120101	Theory	2	-	2
	GE	C Programming	17USS130201	Core - Theory	3	-	3
	GE	Foundations of Computer Science	17USS130401	Allied-Theory	3	-	3
	GE	Essentials of Humanity	17USS141001		2		2
	SC	Junior Software Developer	SSC/ Q 0508	Theory		8	8
				Practical	-	10	10
<b>Total for Semester I</b>					<b>12</b>	<b>18</b>	<b>30</b>

Language-I : Tamil I /Hindi –I/Sanskrit – I/French-I

**NSQF LEVEL 5: Web developer**

Sem	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
II	GE	Language I	17USS210002	Theory	2		2
	GE	Language II : English – II	17USS220102	Theory	2		2
	GE	User Interface Design	17USS230203	Core - Theory	3	-	3
	GE	Graphics Design Using Photoshop	17USS230402	Allied-Theory	3	-	3
	GE	Environmental Science	17USS240901		2		2
	SC	Web Developer	SSC/ Q 0503	Theory		8	8
				Practical		10	10
<b>Total for Semester II</b>					<b>12</b>	<b>18</b>	<b>30</b>

Language-I : Tamil II /Hindi –II /Sanskrit – II/French-II

**NSQF LEVEL 6: Master Trainer for Software Developer**

Sem	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
III	<b>GE</b>	Language– I	<b>17USS310003</b>	Theory	2	-	2
	<b>GE</b>	Language II : English – III :	<b>17USS320103</b>	Theory	2	-	2
	<b>GE</b>	Java Programming	<b>17USS330205</b>	Core – Theory	3	-	3
	<b>GE</b>	System Concepts I	<b>17USS330403</b>	Allied-Theory	3	-	3
	<b>GE</b>	Soft Skills	<b>17USS341002</b>		2		2
	<b>SC</b>	Master Trainer for Junior Software Developer	<b>SSC/ Q0509</b>	Theory		8	8
				Practical		10	10
<b>Total for Semester III</b>					12	18	30

Language-III : Tamil III /Hindi –III /Sanskrit – III/French-III

Sem	GE/ SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
IV	<b>GE</b>	Language – I :	<b>17USS410004</b>	Theory	2	-	2
	<b>GE</b>	Language II : English–IV	<b>17USS420104</b>	Theory	2	-	2
	<b>GE</b>	Advanced Java	<b>17USS430206</b>	Core Theory	3	-	3
	<b>GE</b>	System Concepts II	<b>17USS430404</b>	Allied Theory	3	-	3
	<b>GE</b>	Life Coping Skills	<b>17USS441003</b>		2		2
	<b>SC</b>	Master Trainer for Junior Software Developer	<b>SSC/ Q0509</b>	Theory	-	8	8
				Practical		10	10
<b>Total for Semester IV</b>				Theory	12	18	30

### NSQF LEVEL 7: Software Developer

Sem	GE/SC	Subjects	Qualification Pack	Type	General Education Component	Skill Component	Credits
V	GE	Distributed Technologies	<b>17USS530208</b>	Core Theory	4	-	4
	GE	Software Engineering	<b>17USS530209</b>	Core Theory	4	-	4
	GE	RDBMS	<b>17USS530210</b>	Core Theory	4	-	4
	SC	Software Developer	<b>SSC/ Q 0501</b>	Theory	-	8	8
				Practical		7	7
				Project-I		3	3
	<b>Total for Semester V</b>				12	18	30

Sem	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
VI	GE	Fundamentals of Computer Networks	<b>17USS630211</b>	Core Theory	4	-	4
	GE	LAMP	<b>17USS630212</b>	Core Theory	4	-	4
	GE	Principles of mobile computing	<b>17USS630213</b>	Core Theory	4	-	4
	SC	Software Developer	<b>SSC/ Q 0501</b>	Theory	-	8	8
				Practical		7	7
				Project-II		3	3
	<b>Total for Semester VI</b>				12	18	30

Language – I: Tamil – I

நோக்கம்

- தமிழ் மொழி வாயிலாகக் கணினியின் பல்வேறு வளர்ச்சி நிலைகளை அறியச்செய்தல்.
- கணினியில் தமிழ்மொழி மென்மேலும் வளர மாணவர்களை ஈடுபடச் செய்தல்.

அலகு -1

கணினி அறிமுகம் - கணினி ஒருங்கமைவு - புதிய கணிப்பொறிகளின் முன்னோடிகள்.

அலகு -2

உள்ளீட்டு, வெளியீட்டுக் கருவிகள் - நினைவக நிலைகள் - கணினியின் வளர்ச்சி நிலைகள் - மென்பொருள் - (வன்பொருள்)

அலகு -3

கணினியின் திறனறி அளவுகள் - விண்டோஸ் இயக்கத் தொகுப்பு - இயக்கத் தொகுப்பின் வளர்ச்சி நிலைகள், பணிகள் - கட்டளைகள்.

அலகு -4

எம்.எஸ்.வேர்டு (சொல்லாய்வி) – தரவுகள் உருவாக்கம்

அலகு -5

குழ்சாயவ உருவாக்கம் - உள்ளீடு செய்தல் - படங்கள், வரைபடங்கள் (புசயிர) உருவாக்கம்.

செய்முறைப் பயிற்சிகள்

1. தமிழ் உயிரெழுத்துக்களை எம்.எஸ்.வேர்டில் (சொல்லாய்வி) அட்டவணை (வுயடிடந) உருவாக்கி தட்டச்சு செய்தல்.
2. எம்.எஸ்.வேர்டில் (சொல்லாய்வி) தமிழ் அல்லது ஆங்கிலத்தில் கல்லூரி முதல்வருக்கு விடுப்பு வேண்டி கடிதம் தட்டச்சு செய்தல்.
3. தமிழ் மெய்யெழுத்துக்களை எம்.எஸ்.வேர்டில் (சொல்லாய்வி) அட்டவணை (வுயடிடந) உருவாக்கி தட்டச்சு செய்தல்.
4. யு4 தாள் அளவில் 1உஅ அளவு (ஆயசபடை) அமைத்து அப்பக்கத்தில் படம் ஒன்று உள்ளீடு செய்து அப்படத்தைப் பற்றி முறையாக ஒரு பத்தி தட்டச்சு செய்தல்.
5. எம்.எஸ். எக்ஸல் மூலம் உனது வகுப்பு மாணவர்களின் முதல் ஐவரின் மதிப்பெண்களைக் கொண்டு வரைபடம் உருவாக்கி சொல்லாய்வியில் உள்ளீடு செய்தல்.

பாடநூல்கள்

1. பாஸ்கரன்.க., தமிழில் கணிப்பொறியியல் கணிப்பொறியில் தமிழ், உமா பதிப்பகம், தஞ்சாவூர்.

பார்வை நூல்கள்

1. சிவலிங்கம்.மு., கம்ப்யூட்டர் இயக்கமுறைகள், பழனியப்பா பிரதர்ஸ், சென்னை, 2001
2. ஆண்டோ பீட்டர்.மா., தமிழும் கணிப்பொறியும், கற்பகம் புத்தகாலயம், சென்னை, 2002

**Sem. I**  
**17USS120101**

**Hours/Week : 2**  
**Credit : 2**

**Language II: ENGLISH – I**  
**REMEDIAL GRAMMAR AND VOCABULARY**

**Assurance of Learning**

- To train students to speak and write fluently and correctly.
- To increase students' vocabulary to be ready for global communication.

**Unit I**

1. Subject-verb agreement
2. Tenses
3. Active voice and passive voice

**Unit II**

4. Do Forms
5. Use of negatives
6. Prepositions

**Unit III**

7. Vocabulary I and II
8. Word stress and rhythm
9. Weak forms and strong forms

**Unit IV**

10. Listening Test
11. Reading Test

**Unit V**

12. Test of Accuracy
13. Test of Fluency

**BOOK(S) FOR STUDY**

1. Dutt, Kiranmai, P., Basic communication skills, New Delhi: Foundation Books, 2013.
2. Sasikumar V, Dutt, Kiranmai, P. and Rajeevan Geetha, Oral Communication Skills, New Delhi, Cambridge University Press, 2012.

**Sem. I**  
**17USS130201**

**Hours/Week : 3**  
**Credits : 3**

## **C PROGRAMMING**

### **Assurance of Learning**

- Understand the basic concepts of C programming language
- Learn the problem solving techniques along with its features
- Gain knowledge on the Pointer, Structure and Files
- Develop simple applications using C programming

### **Unit I**

Features of C Language: Data Types - Variables - Operators - Control Structures - Looping Structures.

### **Unit II**

Arrays -Functions – Built-in-functions – User defined functions - Scope of Variables - Passing Arrays to function

### **Unit III**

Strings: Declaring and Initializing String Variable- Reading Strings from Terminal – Reading a Line of Text – Writing Strings to Screen – Putting Strings Together – String Handling Functions - Structure – Union.

### **Unit IV**

Pointers - Pointer to Array - Pointer Array - Pointer Arithmetic - Pointer of Pointer - Functions and Pointers – Call by Value and Call by Reference - Structures and Pointers

### **Unit V**

Files: Text file - Sequential File – Random Access file - Command Line Arguments

### **BOOK(S) FOR STUDY**

1. E.Balagurusamy, “Programming in ANSI C”, Tata McGraw Hill, New Delhi, 5th Ed., 2008

### **BOOK(S) FOR REFERENCE**

1. Byron S. Gottfried, “Programming with C”, Schaum’s Outline Series, Tata McGraw Hill, New Delhi, 1991.
2. E. Karthikeyan, “A Textbook on C Fundamentals, Data Structures and Problem Solving”, Prentice-Hall of India Private Limited, New Delhi, 2008.

**Sem. I**  
**17USS130401**

**Hours/Week : 3**  
**Credit : 3**

## **FOUNDATIONS OF COMPUTER SCIENCE**

### **Assurance of Learning**

- Understand the major components of a computer system
- Fundamental idea on System Software's and basics of networks
- Perform computer operations by searching information on the web and sending mails

### **Unit I**

Organization of Computer: Computer Generation – Features - CPU – Types of Computers – Memory – Input and Output Devices: Input Devices – Output Devices – Storage Devices: Magnetic Disk – Magnetic Tape – Optical Technology – CD ROM Technology.

### **Unit II**

System Software- Prewritten Software: Application Packages – System Software Packages – Computer Protocol and Buffers – Network Topology– LAN, MAN, WAN- Basic Elements of Networking – Network Connecting Processing Techniques – Functions of OS: Compiler – Assembler and Interpreter – Loader and Linker – Introduction to MSDOS, Unix and Windows.

### **Unit III**

Network: Data communication: Forms of communication- Types of channel – Methods of transmission –devices – Internet.

### **Unit IV**

Flowcharts: Convention – Advantages and Limitations – Types of Logic Illustration – Algorithms.

### **Unit V**

E-mail: Sending – Reading – Replaying – Deleting – Existing –Sending Mail to More than One Person – Sending Folder – Forwarding a Mail– Checking the Spelling – Attaching Signature – Filling the Messages –Managing the Address Book.

### **BOOK(S) FOR STUDY**

S. Jaiswal, “ IT Today”, Galgotia Publication Private Ltd., New Delhi, 2004.

### **BOOK(S) FOR REFERENCE**

Suresh K Basendra, “ Computers Today”, Galgotia Publication Private Ltd., New Delhi, 2001.



**Sem. I**  
**17USS141001**

**Hours/Week : 2**  
**Credits : 2**

## **ESSENTIALS OF HUMANITY**

### **Assurance of Learning**

- To create an awareness among students on Human values
- To involve in a process of analyzing, appreciating and personalizing values as our own

### **Unit I**

Principles of value Education -Introduction - What is value Education - Characteristic of values - Kinds of values.

### **Unit II**

Development of Human Personality – Personality traits – Theories of Personality - Discovering self – Defense Mechanism – Power of Positive Thinking – Why Worry?

### **Unit III**

Dimensions of Human Development – Physical Development – Intellectual Development – Emotional Development – Social Development- Moral Development- Spiritual Development.

### **Unit IV**

Responsible parenthood – Human sexuality – Sex and Love - Becoming a spouse

### **Unit V**

Gender Equality and Empowerment – Historical perspective – Education and Economic Development – Crimes against women – Women rights.

### **BOOK(S) FOR STUDY**

S.Papu Benjamin Elango, V.Francis, Marie Serena McConnell, S. Antony Sakthi, X.John Paul “Essentials of Humanity”, (7<sup>th</sup> Revised Ed.)  
St.Joseph’s College (Autonomous), Tiruchirappalli

## QUALIFICATION FILE SUMMARY

<b>Qualification Title</b>	Junior Software Developer(SSC/Q0508)		
<b>Body/bodies which will assess candidates</b>	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)		
<b>Body/bodies which will award the certificate for the qualification.</b>	SSC NASSCOM		
<b>Body which will accredit providers to offer the qualification.</b>	SSC NASSCOM Presently, Accreditation is not prescribed; affiliation is one of the models.		
<b>Occupation(s) to which the qualification gives access</b>	Application Development		
<b>Proposed level of the qualification in the NSQF.</b>	4		
<b>Notional Learning Hours</b>	400 hours approx. (customisable as per learner background)		
<b>Entry requirements / recommendations.</b>	12th pass with good aptitude		
<b>Progression from the qualification.</b>	As shown in the career map (attachment sl.no. 4) As this qualification was added last year based on urgent industry demand, occupational career maps were not updated to include the specific job role. The same are scheduled for update in the next cycle of review and revision of occupational analysis		
<b>Planned arrangements for RPL.</b>	<ul style="list-style-type: none"> <li>- Response to market forces for RPL</li> <li>- RPL assessments will be the same as our normal assessments.</li> <li>- MOUs / Agreement in place for institutions, Retail is work in progress</li> </ul>		
<b>Formal structure of the qualification</b>			
<b>Title of unit or other component</b> (include any identification code used)	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
<b>SSC/ N 0506 (Assist in performing software construction and software testing entry-level tasks in the IT Services industry)</b>	<b>Mandatory</b>	<b>200</b>	<b>4</b>

<b>SSC/N9001 (Manage your work to meet requirements)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9002 (Work effectively with colleagues )</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9003 (Maintain a healthy, safe and secure working environment)</b>	<b>Mandatory</b>	<b>25</b>	
<b>SSC/N9004 (Provide data/information in standard formats)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9005 (Develop your knowledge, skills and competence)</b>	<b>Mandatory</b>	<b>25</b>	

Language – I: Tamil- II

நோக்கம்

- கணினியின் பயன்பாட்டு மென்மங்களைத் தமிழ்வழியில் அறியச்செய்தல்.
- கணினியில் தமிழ்மொழி மென்மேலும் வளர மாணவர்களை ஈடுபடச் செய்தல்.
- கற்றலின் வாயிலாக சுய தொழில் தொடங்கி வாழ்க்கைத் தரத்தை உயர்த்துதல்.

அலகு -1

எம்.எஸ்.எக்சல் (ஆளு. நுஓஊநுடு) – எக்சலின் அமைப்பு - நுழ்சம டிழழம உருவாக்கம் - நிரல் நிறை உருவாக்கம்.

அலகு -2

எம்.எஸ்.எக்சல் செல் பாயிண்டர் இடப்பெயர்ச்சிகள் - எம்.எஸ்.எக்சல் கட்டளைகள்.

அலகு -3

ீழறநச ிழவை பக்கம் உருவாக்கம் - ஞடனைந ஞாமுற உருவாக்கம்.

அலகு -4

ீழறநச ிழவை கட்டளைகள் - தரவுப் பக்கங்களுக்கு இயக்கம் (யுஓைஅயவழை) கொடுத்தல். ியபந-ஆயமநச ஓர் அறிமுகம் - பக்க உருவாக்கம் - தரவுகளை வடிவமைத்தல்.

அலகு -5

படவில்லைகளை உள்ளீடு செய்தல் - அட்டவணையில் தரவுகள் உருவாக்குதல் - ியபந-ஆயமநச கட்டளைத் தொகுப்புகள்.

செய்முறைப் பயிற்சிகள்

1. எம்.எஸ்.எக்சலில் மதிப்பெண் பட்டியல் உருவாக்குதல்.
2. எம்.எஸ்.எக்சலில் ஒரு மாதத்திற்கான வரவு செலவினங்களை பட்டியலிட்டு வரைபடம் உருவாக்குதல்.
3. ிழறநச ிழவைஇல் ஏதேனும் படங்களை உள்ளீடு செய்து அவை தொடர்பான செய்திகளை தமிழ் அல்லது ஆங்கிலத்தில் தட்டச்சு செய்து 5 நிமிடத்திற்கு (யுஓைஅயவழை) ஞடனைந னுநளைபை (ஞழரனை) உருவாக்குதல்.
4. ியபந-ஆயமநசஇல் ஒரு பக்க அளவில் உமது துறை கருத்தரங்கு (ஞநஅயைச) தொடர்பான அழைப்பிதழை உருவாக்குதல்.
5. ியபந-ஆயமநசஇல் அட்டவணை உருவாக்கி பின்புலத்தில் (டிஉமபசழரனை) வண்ணங்கள் கொடுத்து அழகுபடுத்துதல்.

பாடநூல்கள்

1. பாஸ்கரன்.க., தமிழில் கணிப்பொறியியல் கணிப்பொறியில் தமிழ், உமா பதிப்பகம், தஞ்சாவூர்.
2. ிழறநச ிழவை இ நர்மதா பதிப்பம், சென்னை.
3. தணிகை அரசு, ியபந ஆயமநசஇ நர்மதா பதிப்பம், சென்னை.

பார்வை நூல்கள்

1. ஆண்டோ பீட்டர்.மா., தமிழும் கணிப்பொறியும், கற்பகம் புத்தகாலயம், சென்னை, 2002.

**Sem. II**  
**17USS220102**

**Hours/Week : 2**  
**Credit : 2**

**Language II: ENGLISH - II**  
**BASIC COMMUNICATION SKILLS**

**Assurance of Learning**

- To gain proficiency in communication
- To improve language with respect to communication

**Unit I**

1. Talking about yourself
2. Social English
3. Getting about

**Unit II**

4. Shopping
5. Going to the doctor's
6. At school

**Unit III**

7. Finding Work
8. At the Bank and Post office

**Unit IV**

9. Using the Telephone
10. Emergencies

**Unit V**

11. Understanding Regional Speech
12. Metaphor in Spoken English

**BOOK(S) FOR STUDY**

Massey Dorothy, Better English, 3<sup>rd</sup> Ed, VIVA Books

## USER INTERFACE DESIGN

### Assurance of Learning

- Gain knowledge of the concepts and principles of HTML5
- Understand the concepts and principles of CSS3
- Build dynamic websites by using HTML5 and CSS3

### Unit I

**BASIC HTML STRUCTURE:** Starting Your Web Page - Creating a Title - Creating Headings - Grouping Headings - Creating a Header - Marking Navigation - Creating an Article - Defining a Section - Specifying an Aside - Creating a Footer - Creating Generic Containers.

### Unit II

**TEXT:** Starting a New Paragraph - Creating a Figure - Specifying Time - Quoting Text - Highlighting Text - Creating Superscripts and Subscripts - Creating a Line Break - **IMAGES:** Inserting Images on a Page - Specifying Image Size. **LINK:** Creating a Link to another Web Page - Creating Anchors - Linking to a Specific Anchor.

### Unit III

**WORKING WITH STYLE SHEETS:** Creating an External Style Sheet - Linking to External Style Sheets- Creating an Embedded Style Sheet- Applying Inline Styles. **DEFINING SELECTORS:** Constructing Selectors -Selecting Elements by Name- Selecting Elements by Class or ID - Selecting Elements by Context- Combining Selectors.

### Unit IV

**FORMATTING TEXT WITH STYLES:** Choosing a Font Family - Specifying Alternate Fonts - Creating Italics - Applying Bold Formatting - Setting the Font Size - Setting the Line Height - Setting All Font Values at Once - Setting the Color - Changing the Text's Background . **LAYOUT WITH STYLES:** The Box Model - Changing the Background - Setting the Height or Width for an Element - Setting the Margins around an Element - Adding Padding around an Element- Setting the Border - Positioning Elements in 3D- Displaying and Hiding Elements.

### Unit V

**LISTS:** Creating Ordered and Unordered Lists - Styling Nested Lists - Creating Description Lists. **FORMS:** Creating Forms - Processing Forms - Organizing the Form Elements - Creating Text Boxes - Creating Password Boxes - Creating Radio Buttons - Creating Select Boxes - Creating Checkboxes - Creating a Submit Button - Using an Image to Submit a Form. **VIDEO, AUDIO, AND MULTIMEDIA:** Video File Formats - Adding a Single Video to Your Web Page - Adding Audio File Formats- Adding a Single Audio File to Your Web Page - Getting Multimedia Files. **TABLES:** Structuring Tables - Spanning Columns and Rows.

### BOOK(S) FOR STUDY

Elizabeth Castro, Bruce Hyslop "HTML5 & CSS3", Peachpit Press, 7<sup>th</sup> Ed., 2012

### BOOK(S) FOR REFERENCE

1. Alexis Goldstein, Louis Lazaris, Estelle Weyl, "HTML5 & CSS3 for the Real World", Site Point Pvt. Ltd., 2011.
2. Matthew MacDonald, "HTML5: The Missing Manual", O'Reilly, 2011.
- 3 Kogent Learning Solutions Inc. "HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and JQuery", Dreamtech Press, 2011.

**Sem. II**  
**17USS230402**

**Hours/Week : 3**  
**Credit : 3**

## **GRAPHICS DESIGN USING PHOTOSHOP**

### **Assurance of Learning**

- To impart the knowledge of various design patterns to create greeting cards, visiting cards, Web banners using Photoshop
- Learn the various tools in the Photoshop
- Applying transformations and filters in images and do image corrections

### **Unit I**

Introduction & Interface – What is Image? Pixel - Pixel – Resolution – Image Resolution – Printing Resolution – Monitor Resolution – Color Modes (RGB – CMYK – Lab Color – Gray Scale – Bitmap – Duotone – Indexed Color and Multi channel). Zoom In – Zoom Out – Planning – Fit to Screen – Actual Size – Rulers – Guides – Grid.

### **Unit II**

Tools Box – Selection Tools - Painting Tools – Healing – Brush Tool and Patch Tool – Brush Tool and Pencil Tool – Eraser Tool – Background Eraser Tool and Magic Eraser Tool – Dodge – Burn and Sponge.

### **Unit III**

Transforming the Images – Scale – Rotate – Skew – Distort – Perspective – Flip and Canvas – Rotate Canvas – Lassos – Polygonal – Tools and Options – Magic Wand and Options.

### **Unit IV**

Automatic Image Correction – Levels – Curves – Color Balance – Hue/Saturation – Selective Color – Channel Mixer – Brightness/Contrast – Invert – Gradient Color – Shadow / High Light – Histogram – Variations – Photo Filter.

### **Unit V**

Filters: Artistic Filters – Brush stroke Filters – Distort Filters – Pixelate Filters – Render Filters – Sketch Filters – Stylish Filters – Texture filters. Combining Images: Combining Files – Working with Animations.

### **BOOK(S) FOR STUDY**

1. Lisa DaNae Daley, “Adobe Photoshop CS6 BIBLE”, John Wiley & Sons
2. Jennifer Smith, “Adobe Photoshop Digital Classroom” Wiley Publications

**Sem. II**  
**17USS240901**

**Hours/Week : 2**  
**Credits : 2**

## **ENVIRONMENTAL STUDIES**

### **Assurance of Learning**

To understand the natural resources, ecosystems, biodiversity and its Conservation, Environmental Pollution, Social Issues and the Environment and Human Population and the Environment

### **Unit I: The multidisciplinary nature of environmental studies**

Definition, scope and importance – need for public awareness

### **Unit II: Natural resources – renewable & non-renewable**

Natural resources and associated problems – a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people – b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams, benefits and problems – c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies – d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies – e) Energy resources: Growing energy needs, renewable and non-renewable energy resources, use of alternative energy sources, case studies – f) Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification – role of an individual in conservation of natural resources – equitable use of resources for sustainable lifestyles

### **Unit III: Ecosystems**

Concept of an ecosystem – structure and function of an ecosystem producers, consumers and decomposers – energy flow in the ecosystem Ecological succession – food chain, food webs and ecological pyramids introduction, types, characteristic features, structure and function of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)

### **Unit IV: Biodiversity and its Conservation**

Introduction – definition: genetic, species and ecosystem diversity Bio geographical classification of India – value of biodiversity: consumptive use, productive use, social, aesthetic and option values – Biodiversity at global, national and local levels – India as a mega-diversity nation – hot spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – Endangered and endemic species of India conservation of biodiversity: In situ and ex situ conservation of biodiversity

### **Unit V: Environmental Pollution**

Definition – causes, effects and control measures of a) air pollution b) water pollution c) soil pollution d) marine pollution e) Noise pollution f) thermal pollution g) nuclear hazards – solid waste management: causes, effects and control measures of urban and industrial wastes – role of an individual in prevention of pollution – pollution case studies – disaster management: floods, earthquakes, cyclone and landslides

### **Unit VI: Social Issues and the Environment**

From Unsustainable to sustainable development – urban problems related to energy – water conservation, rain water harvesting, watershed management \_resettlement and rehabilitation of people; its problems and concerns \_case studies – environmental ethics: Issues and possible solution \_climate changes, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust – case studies – wasteland reclamation consumerism and waste products – environment protection act – air prevention and control of pollution act – forest conservation act – Issues involved in enforcement of environmental legislation – public awareness

### **Unit VII: Human Population and the Environment**

Population growth, variation among nations – population explosion Family welfare programme – Environment and human health – human rights \_value education – HIV/AIDS – women and child welfare – role of information technology in environment and human health – case studies

### **BOOK(S) FOR STUDY**

Environmental Studies, Department of Foundation Course, St. Joseph's College



## QUALIFICATION FILE SUMMARY

Qualification Title	Web Developer (SSC/ Q 0503)		
Body/bodies which will assess candidates	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)		
Body/bodies which will award the certificate for the qualification.	SSC NASSCOM		
Body which will accredit providers to offer the qualification.	SSC NASSCOM Presently, Accreditation is not prescribed; affiliation is one of the models.		
Occupation(s) to which the qualification gives access	Application Development		
Proposed level of the qualification in the NSQF.	5		
Notional Learning Hours	400 hours approx. (customisable as per learner background)		
Entry requirements / recommendations.	Graduate degree/ diploma in web design/ media design or any other related field		
Progression from the qualification.	As shown in the career map (attachment sl.no. 4)		
Planned arrangements for RPL.	<ul style="list-style-type: none"> <li>- Response to market forces for RPL</li> <li>- RPL assessments will be the same as our normal assessments.</li> <li>- MOUs / Agreement in place for institutions, Retail is work in progress</li> </ul>		
Formal structure of the qualification			
<b>Title of unit or other component</b> (include any identification code used)	<b>Mandatory / Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
<b>SSC/N0501 (Contribute to the design of software products and applications)</b>	<b>Mandatory</b>	<b>100</b>	<b>5</b>
<b>SSC/N0503 (Develop media content and graphic designs for software products and applications)</b>	<b>Mandatory</b>	<b>100</b>	
<b>SSC/N9001 ( Manage your work to meet requirements)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9002 (Work effectively with colleagues )</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9003 (Maintain a healthy, safe and secure working environment)</b>	<b>Mandatory</b>	<b>25</b>	
<b>SSC/N9004 (Provide data/information in standard formats)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9005 (Develop your knowledge, skills and competence)</b>	<b>Mandatory</b>	<b>25</b>	

**LANGUAGE- I: Tamil - III**

**KATRALIL URUTHITHANMAI**

- கணினியின் பயன்பாட்டு மென்மங்களைத் தமிழ்வழியில் அறியச்செய்தல்.
- கற்றலின் வாயிலாக சுய தொழில் தொடங்கி வாழ்க்கைத் தரத்தை உயர்த்துதல்.
- கணினியில் தமிழ்மொழி மென்மேலும் வளர மாணவர்களை ஈடுபடச் செய்தல்.

**அலகு -1**

வுயட்டல ஓர் அறிமுகம் - நிறுவன உருவாக்கம் - குறிப்பேடுகள், பெயரேடுகள் உருவாக்கம்.

**அலகு -2**

வியாபாரக் கணக்கு, இலாப நட்டக் கணக்கு மற்றும் இருப்புநிலைக் குறிப்புகளை அறிதல்.

**அலகு -3**

கணினி - மொழி ஆய்வுக் கருவி – கணினி வழி உரை ஆய்வு.

**அலகு -4**

கணினித்தமிழ் சிக்கல்களும் தேவைகளும். யுனிகோடு (ஒருங்குறி) ஓர் அறிமுகம்.

**அலகு -5**

தமிழ், ஆங்கிலம் ாழநெவலை ஆநவாழனள தட்டச்சு பயிற்சி முறை – தமிழ் வழியாக இணைய பக்கங்களை தேடுதல்.

**செய்முறைப் பயிற்சிகள்**

1. புதிய நிறுவனத்தை உருவாக்குதல் மற்றும் மாற்றம் செய்தல் (ஊசநயவந யனெ யுடவநச வாந ஊழலியலெ)
2. ஏதேனும் 5 நடவடிக்கைகளுக்கு (வுசயளெயஉவழைளெ) குறிப்பேடுகளை (துழரசயெட நுவெசல) உருவாக்குக.
3. ஏதேனும் 5 நடவடிக்கைகளைப் பதிவு செய்து அதை வியாபார, இலாப நட்ட மற்றும் இருப்புநிலைக் குறிப்பினில் காண்பிக்க.
4. தமிழில் றேஆ றுசவைநச மென்மத்தைப் (ளழகவறயசந) பயன்படுத்தி ாழநெவலை ஆநவாழன முறையில் ஒரு பக்கம் தட்டச்சு செய்து காட்டல்.
5. தமிழ் மொழி வாயிலாகத் தமிழ் இணையப் பக்கங்களைத் தேடுதல்.

**பாடநூல்கள்**

1. வுயட்டலஇ நர்மதா பதிப்பம், சென்னை.
2. பாஸ்கரன்.க., தமிழில் கணிப்பொறியியல் கணிப்பொறியில் தமிழ், உமா பதிப்பகம், தஞ்சாவூர்.
3. ஆண்டோ பீட்டர்.மா., தமிழும் கணிப்பொறியும், கற்பகம் புத்தகாலயம், சென்னை, 2002.

**LANGUAGE - II: ENGLISH-III**  
**EFFECTIVE COMMUNICATION SKILLS**

**Assurance of Learning**

- To Learn English through Exercises
- Spotting out errors, while learning

**Unit- I**

Present continuous-Present simple- Present Continuous and Present simple (1)-Present continuous and present simple(2) –past simple-Past continuous- Present perfect- Present perfect (2)- Present perfect continuous- Present perfect continuous and simple.

**Unit-II**

How long have you (been)-When and How long- For and Since- Present perfect and past (1) – Present perfect and past (2) – past perfect –past perfect continuous- have and have got – Used to – Present tenses for the future-going to.

**Unit-III**

Will/shall- Will/shall(2)-I will and I am going to-Will be doing and will have done- When and if – Can, Could and able to- Could and Could have – must and can't – may and might-may and might(2).

**Unit-IV**

Must and have to- must, mustn't and needn't-Should (1) –Should (2)\_ Had better , It's time- Can, Could, Would you..etc-If I do and If I did – If I knew , If I do and If I did -If I knew , I wish I knew - If I had known, I wish I had known- Would , I wish..Would.

**Unit-V**

Passive(1)-Passive(2)-Passive(3)\_ It is said that ,He is said to, supposed to – Have something done-Reported speech(1)-Reported speech (2)-Questions (1)-Questions(2)-Auxiliary verbs.

**BOOK(S) FOR STUDY:**

Murphy Raymond, Essential English Grammar, 2nd edition, Cambridge University Press.

## JAVA PROGRAMMING

### Assurance of Learning

- Learn the fundamentals of Object Oriented Programming Concepts
- Learn core java concepts like Applets, AWT, Networking and Database connectivity
- Create Desktop Applications using Java

### Unit I

**INTRODUCTION TO JAVA:** Primaries – Control Statements. **CLASSES AND OBJECTS:** General form of a class – Creation of Objects –Usage of Constructors – ‘this’ keyword- Constructor overloading-Copy constructors- Static Data Members – Static Methods- ‘finalize()’ Method.

### Unit II

**INHERITANCE AND POLYMORPHISM:** Inheriting Variables in a Class – Inheriting Methods in a Class – Inheritance and Constructors – Abstract Classes – Final Classes. **INTERFACES AND PACKAGES:** Interfaces- Structure of an Interface – Implementation of an Interface – Interface Inheritance. Packages – Placing the Classes in a Package – Package Hierarchy – Access Control Modifiers.

### Unit III

**APPLETS:** The Life Cycle of an Applet – The Applet Class – Development and Execution of a Simple Applet – Syntax of Applet Tag – Methods in the Graphics Class. **ABSTRACT WINDOWING TOOLKIT:** Events – Listeners – Event Handling Methods – Inheritance Hierarchy of Control Classes - Windows and Frames – Menus – Dialogs – Mouse Events and their Listeners.

### Unit IV

**EXCEPTION HANDLING:** Default Exception Handling – Exception and Error Classes – Catch Block Searching Pattern – ‘Throw’ Statement – ‘Throws’ Statement – Custom Exceptions. **THREADS:** Life Cycle of a Thread – Creating and Running Threads – Methods in the Thread Class – Setting the priority of a thread – Synchronization – Dead Lock – Inter Thread Communication – Applets Involving Threads.

### Unit V

**I/O STREAMS:** Input Stream and Output Stream classes – Reader and Writer classes – Data Output Stream and Data Input Stream Classes. **NETWORKING:** TCP Server Socket Class – TCP Socket Class - UDP Datagram Socket and Datagram Packet Classes. **DATABASE CONNECTIVITY:** JDBC-ODBC Connection.

### BOOK(S) FOR STUDY

C.MUTHU, “Programming with JAVA”, Vijay Nicole Imprints, Chennai, 2004.

### BOOK(S) FOR REFERENCE

Herbert Scheldt, “The Complete Reference Java 2.0”, Tata McGraw Hill, New Delhi, 2002.

**Sem. III**  
**17USS330403**

**Hours/Week : 3**  
**Credits : 3**

## **SYSTEMS CONCEPTS- I**

### **Assurance of Learning**

- Fundamental knowledge on data structures
- Basic ideas on algorithms and their design methods
- Basic knowledge about the operating systems and its management

### **Unit I**

Stacks and Queues: Fundamentals- Evaluation of Expressions- Linked Lists: Singly Linked Lists-Linked Stacks and Queues- Trees: Basic Terminology-Binary Trees

### **Unit II**

Complete Development of an Algorithm: Statement – Model Development – Design of an Algorithm – Correctness – Implementation – Analysis and Complexity - Testing – Documentation

### **Unit III**

Design Methods of an Algorithm: Sub goals-Hill Climbing-Working Backward-Heuristic-Back Tracking- Recursion

### **Unit IV**

Operating System Overview –Basic Concepts and Terminologies - Operating System Resource Manager – Process View Point – Hierarchical and Extended Machine View - Processor Management – Process State Model - Job Scheduling- Process Scheduling – Multiprocessor Systems – Process Synchronization – Resolving Deadlocks

### **Unit V**

Device Management – Techniques – Device Characteristics – I/O Traffic Controller – I/O Scheduler and Device Handlers - Virtual Devices – Spooling.

### **BOOK(S) FOR STUDY**

1. Ellis Horowitz and Sartaj Sahni, “Fundamentals of Data structure”, Galgotia Publications, New Delhi, 1985. Unit I
2. S.E. Goodman and S.T. Hedetniemi, “Introduction to the Design and Analysis of Algorithms”, McGrawHill, International Edition, 1988. Units II & III
3. S.E Madnick and J J Donovan “Operating Systems” McGraw Hill International Book Co, New Delhi , 1987. Units IV & V

### **BOOK(S) FOR REFERENCE**

1. Tanenbaum A.M. and Augustein M.J., “Data structures with Pascal”, Prentice Hall of India Ltd, New Delhi, 1985.
2. Ellis Horowitz and Sartaj Sahni, “Fundamentals of Computer Algorithms”, Galgotia Publications, New Delhi, 1985.
3. Andrew S. Tanenbaum, “Modern Operating Systems”, Prentice Hall, New Delhi, 1997

## **SOFT SKILLS**

### **Assurance of Learning**

- Will be able to effectively communicate in any scenario
- Will be able to display better interpersonal skills
- Refine the ability to work constructively within a team
- Will possess the ability to demonstrate their understanding of soft skills
- Improve their skills in reasoning and aptitude

### **Unit I**

Effective Communication & Resume Writing Basics of communication - definition of communication, Barriers of Communication, Non-verbal Communication; Effective Communication - Johari Window, The Art of Listening, Conversation Techniques, Good manners and Etiquettes.

### **Unit II**

Resume Writing & Interview Skills Resume Writing: What is Resume? Types of Resume - Chronological, Functional and Mixed Resume, Steps in preparation of Resume. Interview Skills: Common Interview questions, Attitude, Body Language, The mock interviews, Phone interviews, Behavioral interviews.

### **Unit III**

Group Discussion Group Discussion Basics, GD Topics for Practice, Points for GD Topics. Personal Effectiveness: Self Discovery; and Goal Setting-

### **Unit IV**

Numerical Ability Average, Percentage; Profit and Loss, Simple Interest, Compound Interest; Time and Work, Pipes and Cisterns; Time and Distance, Problems on Trains, Boats and Streams; and Calendar, Rations and Proportions.

### **Unit V**

Test of Reasoning-Verbal Reasoning: Series Completion, Analogy; Data Sufficiency, Assertion and Reasoning; and Logical Deduction. Non-Verbal Reasoning: Series; and Classification

### **BOOK(S) FOR STUDY**

1. Aggarwal, R.S. 2010. A Modern Approach to Verbal and Non Verbal Reasoning. S.Chand, New Delhi.
2. Covey, Stephen. 2004. 7 Habits of Highly effective people, Free Press.Egan, Gerard. (1994). The Skilled Helper (5th Ed). Pacific Grove, Brooks/Cole. 58 59
3. Khera, Shiv 2003. You Can Win. Macmillan Books , Revised Edition.
4. Murphy, Raymond. 1998. Essential English Grammar. 2nd ed., Cambridge University Press. Sankaran, K., & Kumar, M. Group Discussion and Public Speaking. M.I. Pub, Agra, 5th ed., Adams, Media.
5. Trishna's 2006. How to do well in GDs & Interviews, Trishna Knowledge Systems.
6. Yate, Martin. 2005. Hiring the Best: A Manager's Guide to Effective Interviewing and Recruiting.

**LANGUAGE- I: TAMIL –IV**

**KATRALIL URUTHITHANMAI**

இணையப் பக்கங்களில் தமிழின் வளர்ச்சி நிலைகளை அறியச்செய்தல்.  
இணையத்தைத் தமிழ்மொழி வாயிலாகப் பயன்படுத்தக் கற்றுக்கொள்ளல்.  
கணினியில் தமிழ்மொழி மென்மேலும் வளர மாணவர்களை ஈடுபடச் செய்தல்.

**அலகு -1**

இணையம் - விளக்கம் - ற.ற.ற. விளக்கம் - சீழுவழஉழுட விளக்கம்.

**அலகு -2**

வலையமைப்பு வகைகள் - தேடு பொறிகள் (ஞநயசஉா நுபெநெள).

**அலகு -3**

கல்வி சார்ந்த வலைதளங்கள் - வலைதளங்களில் தகவல்களைப் பெறுதலும், பிறர் அறியாத தகவல்களை உள்ளீடு செய்தலும் - தமிழ் மின்னிதழ்கள்.

**அலகு -4**

ர்வுஆடு அறிமுகம் - தகவல் தொடர்பியல் - பல்வேறு வகையான இணையப் பயன்பாடுகள்.

**அலகு -5**

வேலை தேடும் வலைதளங்கள் - அரசு இணைய தளங்கள் - சமூக வலைதளங்கள் மற்றும் அதன் பயன்பாடுகள்.

**செய்முறைப் பயிற்சிகள்**

1. வெவ்வேறு வகையான தேடு பொறிகளின் (ஞநயசஉா நுபெநெள) அமைப்பு முறைகளைக் (வுழழுடள) குறிப்பிடுதல்.
2. வ்யஅடை ஏசைவரயட ருளைநசளவைலஇ மேழுடயபயஅ போன்ற இணைய தளங்களுக்குள் சென்று அவற்றின் பயன்பாடுகளை அறிதல்.
3. தமிழ் மின்னிதழ்களைப் பட்டியலிடுக.
4. தமிழ்நாடு அரசு வேலைவாய்ப்பு பதிவக இணைய தளத்தில் உனது கல்வித் தகுதியைப் பதிவது மற்றும் புதுப்பித்தல் குறித்த செயல்முறை.
5. தமிழ்நாடு அரசு இணையதளத்தில் உள்ள பல்வேறு துறைசார்ந்த விண்ணப்பங்களை (முடெநெ) பெறுதல் மற்றும் உள்ளீடு செய்தல்.

**பாடநூல்கள்**

1. பாஸ்கரன்.க., கணிப்பொறித் தகவல் தொழில்நுட்பம், உமா பதிப்பகம், தஞ்சாவூர்.
2. சாந்தகுமாரி, கணினிக்கல்வி, சாரதா பதிப்பகம், சென்னை, 2010

**பார்வை நூல்.**

1. ஆண்டோ பீட்டர்.மா., தமிழும் கணிப்பொறியும், கற்பகம் புத்தகாலயம், சென்னை, 2002

**Sem. IV**  
**17USS420104**

**Hours/Week : 2**  
**Credits : 2**

**LANGUAGE- II: ENGLISH – IV**  
**ENGLISH LANGUAGE AND ITS USAGE**

**Assurance of Learning**

- Giving importance to usage of the language.
- Focusing on Structure of the language

**Unit-I**

Conjunctions-Particular Conjunctions-Word order and sentence organization- Basic word order- Inversion – Fronting- Information structure- Emphasis.

**Unit-II**

Constructing text- discourse makers-paragraphs-Repetition-Correspondence-Special kinds of language-Politeness- Varieties and styles of English.

**Unit-III**

Topic areas- Spelling and Punctuation-Word building.

**Unit-IV**

Spoken Grammar- Contractions- Spoken structures and Tags – Short answers –reply questions.

**Unit-V**

Various structures-Questions- Question Tag-Negative structures-Imperatives-Exclamations- Direct speech- Indirect speech- relatives-Whoever, Whatever etc., - If –Preparatory it, Cleft sentences –Ellipsis.

**BOOK(S) FOR STUDY:**

Swan Michael, Practical English Usage, Oxford University Press



**ADVANCED JAVA**

**Assurance of Learning**

- Understand the concepts of the server side technology
- Write programs using Java Server Pages
- Understand component development using Java Beans

**Unit I**

Servlets: A Simple Servlet - Constituents of Javax .Servlet Package - Retrieving the Values of Parameters- Procedure for Execution- Retrieving the Values of Initialization Parameters- The javax.servlet.http Package- Constituents of Javax .Servlet.Http Package - Cookies – Creating a Cookie and Sending it to the Client – Retrieving the Stored Cookies- Session Tracking.

**Unit II**

Java.Util Package: Introduction- The collectioninterface- The Set Interface- The ArrayList Class- The Linked List Class – The HashSet Class- The Map Interface- The HashMap Class- The Collection Algorithms- The Enumeration Interface- The Vector Class- The Stack Class- The Dictionary and Hashable Class- The PropertiesClass- The Date Class- The GregorianCalendar Class-The StringTokenizer Class- The Random Class.

**Unit III**

Java Server Pages: Request –Response Cycle in JSP – Scriptlets – Expressions – Declarations- Directives- Implicit Objects- <jsp.include> standard Action - <jsp.forward> standard Action- <jsp.param> standard Action- <jsp.plugin> standard Action.

**Unit IV**

Enterprise Java Beans: EJB Container – EJB as a Component - EJB as a Framework - EJB Types – Session Bean – Message Driven Beans

**Unit V**

Java.Lang Package: Type Wrappers – The Number Class – The Process Class – The Runtime Class – The System Class – The Object Class – The Class class – The Math Class – The String Class – StringBuffer Class.

**BOOK FOR STUDY**

1. C. MUTHU, “Programming with JAVA”, Vijay Nicole Imprints, Chennai, 2004.  
Units I & II
2. C.MUTHU, “Advanced JAVA”, Shalom Infotech Private Limited, 2015.  
Units III, IV & V

**BOOK(S) FOR REFERENCE:**

Herbert Scheldt, “The Complete Reference Java 2.0”, Tata McGraw Hill, New Delhi, 2002.

## **SYSTEM CONCEPTS - II**

### **Assurance of Learning**

- Understand the principles of Linux Operating System for effective System administration
- Understand the basics of Shell Scripting
- Understand the basics of networking
- Understand various security issues in networking
- Know various Firewall policies
- Discuss the webserver (Apache)

### **Unit I**

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux- New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications-Installing Red Hat Linux Applications, Running Window Application, Running Window Applications – Tools for using Internet and Web.

### **Unit II**

Administration: Understanding System Administration: Root login super user- GUI Tools, Commands and Log files-Configuring Hardware-File System and Disk Management-Monitoring Performances. Setting Up and Supporting users: Creating User Accounts – Setting User Defaults – Creating Desktops-Modifying and Deleting Accounts.

### **Unit III**

Shell Basics - Writing script - Conditional statements - Loops - Command line arguments - Functions & file manipulations - Regular Expression & Filters - SED & AWK - Processes

### **Unit IV**

Networking: Setting up a LAN- LAN- Wireless-LAN- Understanding IP Addresses-Security Issues: Hacker versus Cracker-Password Protection-Protection from break-in-Filtering Network Access-Firewalls

### **Unit V**

Setting up File Server: Setting up- NFS- Netware File Server Setting up a Web Server: Web Server- Starting Apache Web Server –Configuring Apache Server –Starting and Stopping the Server – Monitoring Activities.

### **BOOK(S) FOR STUDY**

1. Christopher Negus “Red Hat Linux 9 Bible”, John Wiley& Sons, 2005
2. Mastering Linux Shell Scripting, Second Edition, Mokhtar Ebrahim, Andrew Mallett, 2018

### **BOOK(S) FOR REFERENCE**

Thomas Schenk, “Red Hat Linux System Administration”, Techmedia, New Delhi, 2003.

**Sem. IV**  
**17USS441003**

**Hours/Week : 2**  
**Credit : 2**

## **LIFE COPING SKILLS**

### **Assurance of Learning**

To develop the Personal Skills and to motivate the youngsters

#### **Unit I**

Introduction and outline of the programme – Life Coping Skills – Restructuring one’s own Life Story.

#### **Unit II**

Self Esteem: Importance and Advantages of High Self Esteem – Manifestation of Low Self Esteem – Qualities of High & Low Self Esteem. Self-Concept: Characteristics – Self-Acceptance and Personality Development.

#### **Unit III**

Positive Thinking – Motivation and Self-Actualization – Goal Setting: Definition of Goal – Focus on the Goal – Keeping eyes – The importance of Goals – Dreams – The Obstacles to set Goals – Goal setting – Different Types – Balancing – Scrutinizing – Meaningless Goals.

#### **Unit IV**

Meaning and Attitude to Success: Success – Definition – Obstacles – Winning Edge – Struggle – Overcoming – Measuring – Qualities for Successful – Guidelines.

#### **Unit V**

Problem Solving: Meaning – Principles. Decision Making: Meaning – Decision Making Process. Time Management: Introduction – The Time Factor – Management of Time – Tips Time Management.

### **BOOK(S) FOR STUDY**

We Shall Overcome – A Text book on Life Coping Skills – Dr Xavier Alphonse SJ – ICRDCE Publication, Chennai, December 2011.

## QUALIFICATION FILE SUMMARY

<b>Qualification Title</b>	<b>Master Trainer for Junior Software Developer (SSC/Q0509)</b>		
<b>Body/bodies which will assess candidates</b>	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)		
<b>Body/bodies which will award the certificate for the qualification.</b>	SSC NASSCOM		
<b>Body which will accredit providers to offer the qualification.</b>	SSC NASSCOM Presently, Accreditation is not prescribed; affiliation is one of the models.		
<b>Occupation(s) to which the qualification gives access</b>	Application Development		
<b>Proposed level of the qualification in the NSQF.</b>	6		
<b>Notional Learning Hours</b>	400 hours approx. (customisable as per learner background)		
<b>Entry requirements / recommendations.</b>	Bachelor's Degree		
<b>Progression from the qualification.</b>	This qualification was added in response to the market requirement. The same is yet to be incorporated in the career maps. However, the progression path for this role can move either as a trainer or a practitioner in the occupation - Application Development (as shown in attachment sl.no. 4)		
<b>Planned arrangements for RPL.</b>	<ul style="list-style-type: none"> <li>- Response to market forces for RPL</li> <li>- RPL assessments will be the same as our normal assessments.</li> <li>- MOUs / Agreement in place for institutions, Retail is work in progress</li> </ul>		
<b>Formal structure of the qualification</b>			
<b>Title of unit or other component</b> (include any identification code used)	<b>Mandatory/ Optional</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
SSC/ N 0506 (Assist in performing software construction and software testing entry-level tasks in the IT Services industry)	Mandatory	50	6

<b>SSC/ N 0507 (Employ Programming Lab Oriented Pedagogical Skills as a Master Trainer in the IT Industry)</b>	<b>Mandatory</b>	<b>75</b>	
<b>SSC/ N 0508 (Engage Pedagogical Skills as a Master Trainer)</b>	<b>Mandatory</b>	<b>100</b>	
<b>SSC/N9001 (Manage your work to meet requirements)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9002 (Work effectively with colleagues )</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9003 (Maintain a healthy, safe and secure working environment)</b>	<b>Mandatory</b>	<b>25</b>	
<b>SSC/N9005 (Develop your knowledge, skills and competence)</b>	<b>Mandatory</b>	<b>50</b>	

## DISTRIBUTED TECHNOLOGIES

### Assurance of Learning

- Understand the fundamental concepts of .NET frame work
- Know various tier models in web development
- Understand the different architectures in web development
- Understand the C# Fundamentals
- Understand the fundamentals of ASP.NET programming
- Demonstrate the database connectivity in ASP.NET
- Discuss and extend data list and data grid controls

### Unit I

Client server architecture: 2-tier model – 3-tier model – n-tier model, SQL architecture – DOTNET architecture – MVC architecture.

### Unit II

Introduction to C# language – Variables - Data Types - Boxing and Unboxing - Data Type Conversion - Operators and Expressions – Branching - Looping Statements - Arrays - Methods.

### Unit III

ASP.NET: Introduction – Architecture – ASP.NET Runtime – ASP.NET Parser – Assembly – Page class.

### Unit IV

Web Server Controls – HTML Controls – AdRotator and Calendar controls – Validation Controls – Security Management.

### Unit V

ADO.NET: System.Data, SqlClient and Xml namespaces – Provider objects and Consumer objects – Disconnected data access – GridView & FormView.

## BOOK(S) FOR STUDY

### Unit I

1. Justin Couch, Daniel H. Steinberg, “J2EE Bible”, Wiley India(P) Ltd, New Delhi, 2002.
2. Paul Tremblett, “Instant Enterprise Java y - Beans”, Tata McGraw Hill Publishing Company, New Delhi, 2001.

### Unit I, II, V

3. DR. C.MUTHU, “ASP.NET”, Vijay Nicole Imprints, Chennai, 2004.

### Unit III IV, V

4. Platt S David, “Introducing Microsoft .Net”, Prentice Hall of India, New Delhi, 2003.

## BOOK(S) FOR REFERENCE

1. Stephanie Bodoff, Dale Green, Eric Jendrock, “The J2EE tutorial”, Addison-Wesley, 2002.
2. Hitesh Seth, “Microsoft .NET: kick start”, Sams Publishing, 2004.

## SOFTWARE ENGINEERING

### Assurance of Learning

- Basic understanding of software engineering, terminologies, various process models.
- Learn the importance of software requirement specification and requirement engineering tasks.
- Understand the relationship between estimation, scheduling and modularity of a software system.
- Understand and apply the concept of software metrics, testing strategies and techniques

### Unit I

Introduction: The Software Engineering Discipline - Software Development Projects - Emergence of Software Engineering - Software Life Cycle Models: Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Spiral Model.

### Unit II

Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Empirical Estimation Techniques - COCOMO - Risk Management - Requirements Analysis and Specifications: Requirements Gathering and Analysis - SRS.

### Unit III

Software Design: Cohesion and Coupling - Function-Oriented Software Design: Structured Analysis - DFDs - Structured Design - Object Modeling: Overview of Basic Object-Oriented Concepts - UML Diagrams - Activity Diagram - State Chart Diagram - User Interface Design: Characteristics of a Good User Interface - Basic Concepts.

### Unit IV

Coding and Testing: Coding - Software Documentation - Testing - Unit Testing - Black-Box Testing - White-Box Testing - Debugging - Integration Testing - System Testing - Software Reliability and Quality Management: Software Reliability - Software Quality and Management System.

### Unit V

Computer Aided Software Engineering: Case Environment - Characteristics of CASE Tools - Maintenance: Characteristics of a Software Maintenance - Software Reverse Engineering - Estimation of Maintenance Cost - Software Reuse: A Reuse Approach.

### BOOK(S) FOR STUDY

Rajib Mall, "Fundamentals of Software Engineering", PHI Learning Private Limited, New Delhi, 3rd Ed., 2010.

### BOOK(S) FOR REFERENCE

K.K.Aggarwal and Yogesh Singh, "Software Engineering", New Age International Publishers, Revised 2nd Ed. 2005.

## RDBMS

### Assurance of Learning

- Know the fundamentals of database systems and their design
- Write Queries using SQL
- Implement programming language constructs in Oracle database
- Know the basics of Transaction and Security in databases

### Unit I

**INTRODUCTION TO DATABASE SYSTEM:** Basic concepts and definitions - Data Dictionary – Database – DBMS – DBA - Disadvantages of File oriented System – Advantages and Disadvantages of DBMS – Schema, Subschema– Three-Level Architecture of DBMS - Functions and Services of DBMS - Database Languages – Data Models (Hierarchical, Network, and Relational Model)

### Unit II

**RELATIONAL MODEL:** Relational Algebra – Relational Calculus – Codd’s Rules - Structured Query Language (SQL) – Entity – Relationship (ER) Model

### Unit III

**DATABASE DESIGN:** Software Development Life Cycle (SDLC) - Database Development Life Cycle (DDLC) – Functional Dependency. **NORMALIZATION:** First Normal Form (1NF) – Second Normal Form (2NF) – Third Normal Form (3NF)

### Unit IV

**PL/SQL:** Fundamentals – Data types – Operators – Control Structures – Cursors –Exceptions - Procedures - Functions – Packages – Triggers

### Unit V

**TRANSACTION AND SECURITY MANAGEMENT:** Transaction Concepts – Concurrency Control – Database Backup – Types of Database Failures – Database Recovery Types – Database Security

### BOOK(S) FOR STUDY

1. S. K. Singh, “Database Systems Concepts, Design and Applications”, 2<sup>nd</sup> Edition, Pearson Education, 2006  
Units: I, II, III & V
2. Nilesh Shah, “Database Systems using ORACLE”, Prentice Hall of India, 2005  
Unit IV

### BOOK(S) FOR REFERENCE

Abraham Silberschatz, “ Database Systems”, McGraw Hill International, 1997  
CJ Date, “An Introduction to Database Systems”, 6<sup>th</sup> Ed., Addison Wesley Publishing Company, New York, 1995.



## FUNDAMENTALS OF COMPUTER NETWORKS

### Assurance of Learning

- Basic concepts of networking model and the applications
- Understand the various layers in network model
- Understand the fundamentals of LAN
- Learn various devices used in networking

### Unit I

Introduction to Computer Networks and Data Communication: Need for computer networks - evolution - Data Communication - Data Transmission - Transmission media - Topology.

### Unit II

Classification of Networks - Switching and Routing - Routing - Multiplexing and Concentration Concentrator - Terminal Handling - Components of a Computer Network.

### Unit III

Network Standards and OSI - Need for network standard – OSI reference model - Physical layer - Data link layer - Network layer – Transport layer - Session layer - Application layer.

### Unit IV

LAN: Evolution - Architecture - Advantages and Services - Characteristics - LAN Topologies - LAN access Protocols.

### Unit V

Networking and Internetworking Devices – Repeaters – Bridges – Routers – Gateways – Other Devices - Firewall – Hotspot Devices – L2/L3 – Manageable Switches

### BOOK(S) FOR STUDY

R.S.Rajesh, K.S.Eswarakumar & R. Balasubramanian, 'Computer Networks - Fundamentals and Applications', Vikas Publishing House Pvt. Ltd., First Edition, 2002.

### BOOK(S) FOR REFERENCE

Andrew S Tanenbaum , "Computer Networks" , Prentice Hall of India, New Delhi, 3rd Edition, 1999.

## LAMP

### Assurance of Learning

- Understand the basics of LINUX operating system
- Understand how web servers works
- Understand the MySQL database concepts
- Know the fundamentals of PHP programming

### Unit I

Linux: Introduction - Download and Install - Decisions, Decisions – Linux Partition Sizes - Accounts - Security - Basic UNIX: Shell - Owner, Groups, Permissions, Ownership - Processes - PATH and Environment - Commands- Basic File System Essentials - Useful Programs.

### Unit II

Apache Web server: Starting and Stopping and Restarting Apache- Configuration - Securing Apache - Create the Web Site-Apache Log Files.

### Unit III

My SQL: Commands - Database Independent Interface - Tables – Loading and Dumping Database.

### Unit IV

PHP: Embedding PHP into HTML -Configuration - Language Syntax: Variables - Data Types - Web variables - Operators - Flow Control Constructs - Writing PHP Papers.

### Unit V

Built in PHP function - Important Functions - Array Functions – String Functions - Other Functions - PHP and MySQL: MySQL Functions.

### BOOK(S) FOR STUDY

James Lee and Brent Lee “Open Source Development with LAMP - Using Linux , Apache, My SQL ,Perl and PHP”, Pearson Education , 2009.

### BOOK(S) FOR REFERENCE

Jason Gerner, Elizabeth Naramore , Morgan Owens and Matt Warden, “Professional LAMP - Using Linux , Apache, My SQL and PHP5Web development”, Wiley Publisher, 2006.

**Sem. VI**

**Hours/Week : 4**

**17USS630213**

**Credits : 4**

## **PRINCIPLES OF MOBILE COMPUTING**

### **Assurance of Learning**

- Understand the concepts of mobile computing.
- know the Evolutions of mobile computing
- know the Mobile IP Address communication
- Learn the technologies for developing applications on mobile platforms.
- Create applications for smart devices using android.
- Understand UI - components, layouts, event handling, and screen orientation.
- 

### **Unit I**

Wireless Networks – Emerging Technologies – Blue tooth, WiFi, WiMAX, 3G, 4G, WATM – Mobile IP Protocols – WAP Push Architecture. WML Scripts and Applications - Mobile Computing Environment – Functions – Architecture – Design Considerations, Content Architecture – CC/PP Exchange Protocol, Context Manager.

### **Unit II**

Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS). Software Development Kit: iOS, Android, BlackBerry, Windows Phone.

### **Unit III**

Introducing the Android Software Development Platform: Understanding Java SE and Dalvik - The Directory Structure - Common Default Resources Folders- The Values Folder- Leveraging Android XML- Screen Sizes- Desktop Clocks- Using Android Application Resources- Launching Application: The AndroidManifest.xml File - Creating First Android Application- Running the App- Adding an Application Icon- Adding Transparency.

### **Unit IV**

Screen Layout Design- Android View Hierarchies- Nesting Views- Defining Screen Layouts- Editing the main.xml File- Using Relative Layouts- Sliding Drawers- Using Padding and Margins with Views and Layouts.

### **Unit V**

UI Design: Buttons, Menus, and Dialogs: Using Common UI Elements- Adding an Image Button to Your Layout- Defining Multistate Image Button Graphics in XML - Editing the main.xml File- Replacing the Default Background- Adding a Text to Your Layout - Adding an Image- Using Menus in Android- Creating the Menu Structure with XML- Running the Application in the Android Emulator- Making the Menu Work- Adding Dialogs.

**BOOK (S) FOR STUDY**

1. Ivan stojmenovic, Hand book of Wireless Networks and Mobile computing, John wiley &sons Inc, Canada, 2002. Unit I
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, 2003.
3. William.C.Y.Lee,“Mobile Cellular Telecommunications-Analog and Digital Systems”, Second Edition,Tata Mc Graw Hill Edition ,2006.
4. Asoke K Taukder, Roopa R Yavagal, Mobile Computing, Tata McGraw Hill Pub Co., New Delhi, 2005. Unit II
5. Wallace Jackson, “Android Apps for Absolute Beginners”, Apress, Copyright © 2011 by Wallace Jackson, ISBN-13 (pbk): 978-1-4302-3446-3,ISBN-13 (electronic): 978-1-4302-3447-0, Unit III – Chapter 4, Unit IV – Chapter 6 & Unit V – Chapter 7.

**BOOK(S) FOR REFERENCE**

Dave Smith and Jeff Friesen, “Android Recipes: A Problem – Solution Approach” , Rakmo Press (P) Ltd, New Delhi, 2011

## 7. QUALIFICATION FILE SUMMARY

Qualification Title	Software Developer (SSC/Q0501)		
Body/bodies which will assess candidates	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)		
Body/bodies which will award the certificate for the qualification.	SSC NASSCOM		
Body which will accredit providers to offer the qualification.	SSC NASSCOM Presently, Accreditation is not prescribed; affiliation is one of the models.		
Occupation(s) to which the qualification gives access	Application Development		
Proposed level of the qualification in the NSQF.	7		
Notional Learning Hours	400 hours approx. (customisable as per learner background)		
Entry requirements / recommendations.	Bachelor's Degree in Computer Science or any related field		
Progression from the qualification.	As shown in the career map (attachment sl.no. 4)		
Planned arrangements for RPL.	<ul style="list-style-type: none"> <li>- Response to market forces for RPL</li> <li>- RPL assessments will be the same as our normal assessments.</li> <li>- MOUs / Agreement in place for institutions, Retail is work in progress</li> </ul>		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
<b>SSC/N0501 (Contribute to the design of software products and applications)</b>	<b>Mandatory</b>	<b>100</b>	<b>7</b>
<b>SSC/N0502 (Develop software code to specification)</b>	<b>Mandatory</b>	<b>100</b>	
<b>SSC/N9001 (Manage your work to meet requirements)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9002 (Work effectively with colleagues )</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9003 (Maintain a healthy, safe and secure working environment)</b>	<b>Mandatory</b>	<b>25</b>	
<b>SSC/N9004 (Provide data/information in standard formats)</b>	<b>Mandatory</b>	<b>50</b>	
<b>SSC/N9005 (Develop your knowledge, skills and competence)</b>	<b>Mandatory</b>	<b>25</b>	