

BACHELOR OF VOCATION

(SOFTWARE DEVELOPMENT AND SYSTEM ADMINISTRATION)

SYLLABUS – 2021



ST. JOSEPH'S COLLEGE (AUTONOMOUS)

Special Heritage Status Awarded by UGC
Accredited at A++ Grade (4th Cycle) by NAAC
College with Potential for Excellence by UGC
TIRUCHIRAPPALLI – 620 002, INDIA



Programme Outcomes (POs)

POs - UG

1. Graduates will be able to apply the concepts learnt, in real life situations with analytical skills.
2. Graduates with acquired skills and enhanced knowledge will be employable/ become entrepreneurs or will pursue higher Education.
3. Graduates with acquired knowledge of modern tools and communicative skills will be able to contribute effectively as team members.
4. Graduates will be able to read the signs of the times analyze and provide practical solutions.
5. Graduates imbued with ethical values and social concern will be able to appreciate cultural diversity, promote social harmony and ensure sustainable environment.

Programme Specific Outcomes (PSo)

1. **PSO1:** Understand the fundamental concepts of the design and development of software solutions and management of computational systems.
2. **PSO2:** Analyze and develop computer programs in the areas related to web design, mobile application design on par with industry requirements.
3. **PSO3:** Acquaint themselves with the state of the art trends in software development and provide novel ideas and resolutions in the area of software development.
4. **PSO4:** Ability to work as an individual and in collaboration with teams by applying imbibed technological skills to effectively provide optimal software products.
5. **PSO5:** Equip them to ethically manage and create computational systems which cater to practical needs of the society.

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

NSQF LEVEL 4: Junior Software Developer

Semester	Part	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
I	GE	Language-I: Tamil-I	21USS110001	Theory	2	-	2
	GE	Language II: English – I	21USS120101	Theory	2	-	2
	GE	C Programming	21USS130201	Core Theory	3	-	3
	GE	Mathematics-I	21USS130401	Allied Theory	3	-	3
	GE	Essentials of Humanity	21USS141001		2		2
	SC	Junior Software Developer (SSC/ Q 0508)	21USS130202	Theory		8	8
				Practical		-	10
Total for Semester I					12	18	30

NSQF LEVEL 5: Web developer

Semester	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
II	GE	Language I: Tamil-II	21USS210002	Theory	2		2
	GE	Language II: English – II	21USS220102	Theory	2		2
	GE	User Interface Design	21USS230203	Core Theory	3	-	3
	GE	Mathematics-II	21USS230402	Allied Theory	3	-	3
	GE	Environmental Science	21USS240901		2		2
	SC	Web Developer (SSC/ Q 0503)	21USS230204	Theory		8	8
				Practical			10
Total for Semester II					12	18	30

NSQF LEVEL 6: Master Trainer for Software Developer

Semester	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
III	GE	Language– I: Tamil-III	21USS310003	Theory	2	-	2
	GE	Language II : English – III :	21USS3201003	Theory	2	-	2
	GE	Java Programming	21USS330205	Core Theory	3	-	3
	GE	Operating System	21USS330403	Allied Theory	3	-	3
	GE	Soft Skills	21USS341002		2		2
	SC	Master Trainer for Junior Software Developer (SSC/ Q0509)	21USS430207	Theory		8	8
				Practical		10	10
Total for Semester III					12	18	30

Semester	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
IV	GE	Language – I: Tamil-IV	21USS410004	Theory	2	-	2
	GE	Language II: English– IV	21USS420104	Theory	2	-	2
	GE	PHP with MySQL	21USS430206	Core Theory	3	-	3
	GE	Unix and Linux Administration	21USS430404	Allied Theory	3	-	3
	GE	Life Coping Skills	21USS441003		2		2
	SC	Master Trainer for Junior Software Developer (SSC/ Q0509)	21USS430207	Theory	-	8	8
				Practical		10	10
Total for Semester IV				Theory	12	18	30

NSQF LEVEL 7: Software Developer

Semester	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
V	GE	Distributed Technologies	21USS530208	Core Theory	4	-	4
	GE	Software Engineering	21USS530209	Core Theory	4	-	4
	GE	RDBMS	21USS530210	Core Theory	4	-	4
	SC	Software Developer (SSC/ Q 0501)	21USS630214	Theory	-	8	8
				Practical		7	7
				Project-I		3	3
	Total for Semester V				12	18	30

Semester	GE/SC	Subjects	Subject Code	Type	General Education Component	Skill Component	Credits
VI	GE	Fundamentals of Computer Networks	21USS630211	Core Theory	4	-	4
	GE	Data Analysis Using Python	21USS630212	Core Theory	4	-	4
	GE	Principles of mobile computing	21USS630213	Core Theory	4	-	4
	SC	Software Developer (SSC/ Q 0501)	21USS630214	Theory	-	8	8
				Practical		7	7
				Project-II		3	3
	Total for Semester VI				12	18	30

Semester	Course Code	Title of the Course	Hours	Credits
I	21USS110001	Language – I: Tamil – I	2	2

CO No.	CO- Statement	Cognitive Level (K- level)
இப்பாடத்தின் நிறைவில் மாணவர்கள்		
CO-1	கணினியின் வரலாற்றையும் செயல்பாட்டையும் அறிந்து கொள்வர்	K 1
CO-2	தமிழ் எழுத்துருக்களை அறிந்து தட்டச்சு செய்யும் பயிற்சியை பெறுவர்	K 1
CO-3	தத்தம் துறை சார்ந்த பணிகளில் கணினியைப் பயன்படுத்தி தங்கள் பணியை விரிவுப்படுத்திக் கொள்வர்.	K 2
CO-4	கணினி இயக்கத்தொகுப்புகளின் வளர்ச்சியைக் கண்டறிவர்	K 3
CO-5	கணினியில் கோப்புஉருவாக்கம் மற்றும் காட்சிவில்லை வடிவமைக்கும் முறையைப் பகுத்தாராய்வர்.	K 4

அலகு -1 (2Hours)

கணினி அறிமுகம் - கணினி ஒருங்கமைவு – புதிய கணிப்பொறிகளின் முன்னோடிகள்.

அலகு -2 (2Hours)

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

அலகு -3 (2Hours)

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

அலகு -4 (2Hours)

எம்.எஸ்.வேர்டு (சொல்லாய்வி) – தரவுகள் உருவாக்கம்

அலகு -5 (2Hours)

Format உருவாக்கம் - உள்ளீடுசெய்தல் - படங்கள், வரைபடங்கள் (Graph) உருவாக்கம்.

செய்முறைப் பயிற்சிகள்

1. தமிழ் உயிரெழுத்துக்களை எம்.எஸ்.வேர்டில் (சொல்லாய்வி) அட்டவணை (Table) உருவாக்கித் தட்டச்சுசெய்தல்.

2. எம்.எஸ்.வேர்டில் (சொல்லாய்வி) தமிழ் அல்லது ஆங்கிலத்தில் கல்லூரி முதல்வருக்கு விடுப்பு வேண்டிக் கடிதம் தட்டச்சுசெய்தல்.
3. தமிழ் மெய்யெழுத்துக்களை எம்.எஸ்.வேர்டில் (சொல்லாய்வி) அட்டவணை (Table) உருவாக்கி தட்டச்சு செய்தல்.
4. A4 தாள் அளவில் 1cm msT (Margin) அமைத்து அப்பக்கத்தில் படம் ஒன்று உள்ளீடு செய்து அப்படத்தைப் பற்றி முறையாக ஒருபத்தி தட்டச்சு செய்தல்.
5. எம்.எஸ். எக்ஸல் மூலம் உனது வகுப்பு மாணவர்களின் முதல் ஐவரின் மதிப்பெண்களைக் கொண்டு வரைபடம் உருவாக்கி சொல்லாய்வியில் உள்ளீடு செய்தல்.

பாடநூல் :

1. சுந்தரம்.இல., கணினித்தமிழ், விகடன் பிரசுரம், அண்ணாசாலை, சென்னை-2, முதற்பதிப்பு, 2015

பார்வைநூல் :

1. பாஸ்கரன்.க., தமிழில் கணிப்பொறியியல் கணிப்பொறியில் தமிழ், உமாபதிப்பகம், தஞ்சாவூர்
2. ஆண்டோ பீட்டர்.மா., தமிழும் கணிப்பொறியும், கற்பகம் புத்தகாலயம், சென்னை, 2002.

Semester	Course Code	Title of the Course	Hours	Credits
I	21USS120101	Language II: English – I	2	2

Remedial Grammar and Vocabulary

Course Outcome

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

Unit I

(2 Hours)

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

Unit II

(2 Hours)

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

Unit III

(2 Hours)

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

Unit IV

(2Hours)

10. Listening Test

11. Reading Test

Unit V

(2Hours)

12. Test of Accuracy

13. Test of Fluency

Books for Study

1. Dutt, Kiranmai, P., Basic communication skills, NewDelhi: Foundation Books, 2013.

Semester	Course Code	Title of the Course	Hours	Credits
I	21USS130201	CORE-I C Programming	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Identify situations where computational methods and computers would be useful.	K1
CO-2	Understanding the basic concepts of C Language	K2
CO-3	Choose the right data representation formats based on the problem	K3
CO-4	Write the program on computer, edit, compile, debug, correct and run it	K3,k2
CO-5	Identify tasks in which numerical techniques are learned and apply them to write programs	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit -I (9Hours)

FEATURES OF C LANGUAGE: Data Types - Variables - Operators - Control Structures - Looping Structures.

Unit –II (9Hours)

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

Unit- III (9Hours)

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**(9Hours)**

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**(9Hours)**

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

Books for Study

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

Unit-I Chapter 2(Pages 23-45) Chapter (53-61) Chapter 5(114-148) Chapter 6(152-159)

Unit-II Chapter 7(Pages190-199) Chapter 9(262-294)

Unit-III Chapter 8 (Pages 229-244) Chapter 10(317-335)

Unit-IV Chapter 11 (Pages 315-358,370-376)

Unit-V Chapter 12 (Pages 389-400)

Books 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.

3. YashavantKanetkar, “Let us C”, BPB Publications, Tenth Edition, New Delhi: 2010.

Semester	Course Code	Title of the Paper									Hours	Credit
I	21USS130201	Core- I: C Programming									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	3	2	3	3	3	2	3	2	2	2.6	
CO-2	2	3	2	3	2	3	3	2	2	2	2.4	
CO-3	3	3	2	3	3	3	3	3	2	2	2.7	
CO-4	2	3	2	2	2	3	3	2	2	2	2.3	
CO-5	3	3	2	2	3	2	3	3	2	3	2.6	
Mean overall score											2.52 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$		
Result	Mean Overall Score		< 1.2	# Low
			≥ 1.2 and < 2.2	# Medium
			≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
I	21USS130401	ALLIED-I Mathematics -1	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	To enable the students to have a thorough knowledge of the fundamental concept basic algebra	K1
CO-2	Basic concepts of matrices, Eigen values and Eigen vectors	K1
CO-3	To understand the principles of Algebra	K2
CO-4	To study the various techniques using matrix	K3
CO-5	To know the different types Averages	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (9Hours)

Geometric progression: Series – Sequences, Arithmetic Progression: Series - Sequences

Unit-II (9Hours)

Sets: Notation – Numerical sets – Universal set – Equality – Subsets - Union – Intersection- Difference

Unit-III (9Hours)

Algebra: Complex Numbers- Separation into real and imaginary parts – Quadratic Equation

Unit-IV (9Hours)

Matrix: Rank of a matrix of order 2 and 3 - Addition – Subtraction – Multiplication – Transpose

Unit-V (9Hours)

Averages: Mean, Median, Mode - Measures of variation: Range, Standard deviation, coefficient of skewness.

Books for Study

1. Fundamentals of Mathematical Statistics by S.C.Gupta and V.K.Kapoor.
2. Dr. M.K. Venkataraman Higher Mathematics for Engineering and Science

Books for Reference

1. Technical Mathematics by Paul A.Calter, Sixth edition

Semester	Course Code	Title of the Paper									Hours	Credit
I	21USS130401	Allied-I: Mathematics -1									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	3	2	3	3	2	3	3	2	2.6	
CO-2	2	3	2	3	2	2	3	2	2	2	2.3	
CO-3	2	2	2	1	2	2	2	2	2	2	1.9	
CO-4	1	3	3	3	2	2	2	2	3	3	2.4	
CO-5	2	2	3	2	2	3	2	2	2	2	2.2	
Mean overall score											2.28 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

$\text{Mean Scores of COs} = \frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		$\text{Mean Overall Score} = \frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
I	21USS141001	Essentials Of Humanity	2	2

Course Outcome

- 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

(2 Hours)

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

Unit- II

(2Hours)

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

Unit –III

(2Hours)

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

Unit- IV

(2Hours)

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

Unit –V

(2Hours)

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

Books for Study

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

Semester	Course Code	Title of the Course	Hours	Credits
II	21USS210002	Language – I: Tamil- II	2	2

CO NO.	CO- Statement	Cognitive Level (K- level)
இப்பாடத்தின் நிறைவில் மாணவர்கள்		
CO-1	கணினியில் எம்.எஸ்.எக்சல் மென்பொருள் செயல்பாட்டை அறிந்து கொள்வர்	K 1
CO-2	எம்.எஸ்.எக்சலில் தமிழ்எழுத்துருக்களை தட்டச்சுசெய்யும் பயிற்சியைப் பெறுவர்	K 1
CO-3	தத்தம் துறை சார்ந்த பணிகளில் எம்.எஸ்.எக்சலைப் பயன்படுத்தித் தங்கள் பணியை விரிவுப்படுத்திக் கொள்வர்.	K 2
CO-4	கணினி இயக்கத்தொகுப்புகளின் எம்.எஸ்.எக்சலின் வளர்ச்சியைக் கண்டறிவர்	K 3
CO-5	கணினியில் கோப்புஉருவாக்கம் மற்றும் காட்சிவில்லை வடிவமைக்கும் முறையைப் பகுத்தாராய்வர்.	K 4

அலகு -1

(2Hours)

எம்.எஸ்.எக்சல் (MS. EXCEL) – எக்சலின் அமைப்பு - Work book உருவாக்கம் - நிரல் நிறை உருவாக்கம்.

அலகு -2

(2Hours)

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

அலகு -3

(2Hours)

Power point பக்கம் உருவாக்கம் - Slide Show உருவாக்கம்

அலகு -4

(2Hours)

Power Point கட்டளைகள் - தரவுப் பக்கங்களுக்கு இயக்கம் (Animation) கொடுத்தல். Page-Maker ஓர் அறிமுகம் - பக்க உருவாக்கம் - தரவுகளை வடிவமைத்தல்.

அலகு -5

(2Hours)

படவில்லைகளை உள்ளீடு செய்தல் - அட்டவணையில் தரவுகள் உருவாக்குதல் - Page-Maker கட்டளைத் தொகுப்புகள்.

செய்முறைப் பயிற்சிகள்

1. எம்.எஸ்.எக்சலில் மதிப்பெண் பட்டியல் உருவாக்குதல்.
2. எம்.எஸ்.எக்சலில் ஒரு மாதத்திற்கான வரவு செலவினங்களைப் பட்டியலிட்டு வரைபடம் உருவாக்குதல்.
3. Power pointஇல் ஏதேனும் படங்களை உள்ளீடு செய்து அவை தொடர்பான செய்திகளைத் தமிழ் அல்லது ஆங்கிலத்தில் தட்டச்சு செய்து 5 நிமிடத்திற்குள் (Animation, Slide Design, Sounds) உருவாக்குதல்.
4. Page-Maker இல் ஒரு பக்க அளவில் உமது துறை கருத்தரங்கு (Seminar) தொடர்பான அழைப்பிதழை உருவாக்குதல்.

பாடநூல் :

1. சுந்தரம்.இல., கணினித்தமிழ், விகடன் பிரசுரம், அண்ணாசாலை, சென்னை-2, முதற்பதிப்பு, 2015

பார்வை நூல்கள் :

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

Semester	Course Code	Title of the Course	Hours	Credits
II	21USS220102	Language II: English - II	2	2

Basic Communication Skills

Course Outcome

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

Unit -I

(2Hours)

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

Unit –II

(2Hours)

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

Unit –III

(2Hours)

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

Unit –IV

(2Hours)

9. Using the Telephone
10. Emergencies

Unit V

(2Hours)

11. Understanding Regional Speech
12. Metaphor in Spoken English

Books for Study

1. Massey Dorothy, Better English, 3 rd Ed, VIVA Books

Semester	Course Code	Title of the Course	Hours	Credits
II	21USS230203	CORE-II User Interface Design	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Gain knowledge on the concepts and principles of HTML5	K1,k2
CO-2	Understand the concepts and principles of CSS3	K2
CO-3	Build dynamic websites by using HTML5 and CSS3	K3
CO-4	Implement structured and semantic data in websites	K3,k2
CO-5	Writing valid and concise script for web pages	K4
* K1 :-Knowledge/Remembering; K2 :-Comprehension/Understanding; K3 :-Application/Applying; K4 :-Analysis/Analysing		

Unit- I **(9Hours)**

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 **(9Hours)**

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 **(9Hours)**

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 **(9Hours)**

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 . **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.

Unit V

(9Hours)

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. **JAVASCRIPT OVERVIEW:** loading an external script-adding an embedded script-JavaScript events

Books for Study

1. Elizabeth Castro, Bruce Hyslop “HTML5 & CSS3”, Peachpit Press, 8th Ed., 2012

Unit-I *Chapter 3(Pages 43-70)*

Unit-II *Chapter 4(Pages 87-104,116-118) Chapter 5(134-149,157-164)*

Unit-III *Chapter 8 (Pages 189-196) Chapter 9(203-208,226-227)*

Unit-IV *Chapter 10 (Pages 229-250) Chapter 16(389-390,409,410-449)*

Unit-V *Chapter 17 (Pages 451-456) Chapter 18(477-482) Chapter 19 (485-493)*

Books for Reference

1. Alexis Goldstein, Louis Lazaris, Estelle Weyl, “HTML5 & CSS3 for the Real World”, Site Point Pvt. Ltd., 2011.

2. Jeremy McPeak, Paul Wilton” Beginning JavaScript “,5th Edition, John Wiley & Sons, Inc, USA, 2015.

3. Kogent Learning Solutions Inc. “HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and JQuery”, Dreamtech Press, 2011

Semester	Course Code	Title of the Paper									Hours	Credit
II	21USS230203	Core-II: UserInterface Design									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of Cos	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	3	2	3	2	3	3	2	3	2	2.6	
CO-2	3	2	3	3	2	3	2	3	2	3	2.6	
CO-3	3	3	3	3	2	3	3	2	3	3	2.8	
CO-4	3	3	3	2	2	3	3	3	2	2	2.6	
CO-5	3	3	3	2	1	2	3	3	3	3	2.6	
Mean overall score											2.64 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$		
Result	Mean Overall Score		< 1.2	# Low
			≥ 1.2 and < 2.2	# Medium
			≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
II	21USS230402	ALLIED -II Mathematics -II	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	To enable the students to have a thorough knowledge of the fundamental concept coding theory	K1
CO-2	To understand the concept of logics	K1
CO-3	To understand the principles of Relations	K2
CO-4	To study the various techniques using number system	K3
CO-5	To know the different techniques in operation research	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (9Hours)

CODING THEORY: Introduction - Cryptography - Caesar Cypher Coding - Matrix encoding – Scrambled codes - Hamming metric - Hamming Distance.

Unit-II (9Hours)

MATHEMATICAL LOGIC: Propositions - evaluation - precedence rules -Tautologies - reasoning using equivalence transformation - laws of equivalence - substitution rules

Unit-III (9Hours)

Relations: Operations on relations, Equivalence relations & partitions, Partial Orders, Ordered Sets

Unit-IV (9Hours)

Number System: Decimal, Binary, Octal, Hexadecimal conversion- Binary addition, Subtraction and Multiplication

Unit-V (9Hours)

OPERATION RESEARCH: Basics of OR – OR & Decision Making -Linear Programming- North West corner method – Least cost method

Books for Study

1. Alan Doerr, Kenneth, Levasseur, “Applied Discrete Structure for Computer Science”,Galgotia Pub., New Delhi, 1995,
2. David Gries, “The Science of Programming”, Narosa Pub. House, New Delhi, 1993. (Chapters 1, 2,3.1 to 3.3) (For UNIT – IsI).

Books for Reference

1. Bernard Kilman, Robert C.Busby, “Discrete Mathematical Structure for Computer Science”, 2nd Ed., PHI, New Delhi, 1988.

Semester	Course Code	Title of the Paper									Hours	Credit
II	21USS230402	Allied-II: Mathematics -II									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	3	2	3	3	2	3	3	2	2.6	
CO-2	2	3	2	3	2	2	3	2	2	2	2.3	
CO-3	2	2	2	1	3	2	3	3	2	2	2.2	
CO-4	1	3	2	3	2	2	2	2	3	3	2.3	
CO-5	2	2	2	2	2	3	2	3	2	2	2.2	
Mean Overall Score											2.32 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

$\text{Mean Scores of COs} = \frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		$\text{Mean Overall Score} = \frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
II	21USS240901	Environmental Science	2	2

Course Outcome

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

(2Hours)

The multidisciplinary nature of environmental studies Definition, scope and importance – need for public awareness

Unit –II

(2Hours)

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

(2Hours)

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

(2Hours)

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

(2Hours)

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

(2Hours)

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

(2Hours)

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

Books for Study

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

Semester	Course Code	Title of the Course	Hours	Credits
III	21USS310003	Language- I: Tamil - III	2	2

CO NO.	CO- Statement	Cognitive Level (K- level)
இப்பாடத்தின் நிறைவில் மாணவர்கள்		
CO-1	கணினியில் டேலி மென்பொருள் செயல்பாட்டை அறிந்து கொள்வர்	K 1
CO-2	டேலி மூலம் வியாபாரஇருப்புகள் பற்றிய விவரங்களை பதிவேற்றம் பயிற்சியைப் பெறுவர்	K 1
CO-3	தத்தம் துறை சார்ந்த பணிகளை கணினி பயன்படுத்தித் தங்கள் பணியை விரிவுப்படுத்திக் கொள்வர்.	K 2
CO-4	கணினியில் தமிழ் எழுத்துருக்கள் வளர்ச்சியைக் கண்டறிவர்	K 3
CO-5	கணினியில் கோப்புகளை வடிவமைக்கும் முறையைப் பகுத்தாராய்வர்.	K 4

அலகு -1 (2Hours)

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

அலகு -2 (2Hours)

வியாபாரக் கணக்கு, இலாப நஷ்டக் கணக்கு மற்றும் இருப்புநிலைக் குறிப்புகளை அறிதல்.

அலகு -3 (2Hours)

கணினி - மொழி ஆய்வுக் கருவி – கணினி வழி உரை ஆய்வு.

அலகு -4 (2Hours)

கணினித்தமிழ் சிக்கல்களும் தேவைகளும். யுனிகோடு (ஒருங்குறி) ஓர் அறிமுகம்.

அலகு -5 (2Hours)

தமிழ், ஆங்கிலம் Phonetic Methods தட்டச்சு பயிற்சி முறை – தமிழ் வழியாக இணைய பக்கங்களை தேடுதல்.

செய்முறைப் பயிற்சிகள்

1. புதிய நிறுவனத்தை உருவாக்குதல் மற்றும் மாற்றம் செய்தல் (Create and Alter the Company)

2. ஏதேனும் 5 நடவடிக்கைகளுக்கு (Transactions) குறிப்பேடுகளை (Journal Entry) உருவாக்குக.

3. ஏதேனும் 5 நடவடிக்கைகளைப் பதிவு செய்து அதை வியாபார, இலாப நட்ட மற்றும் இருப்புநிலைக் குறிப்பினில் காண்பிக்க.

4. தமிழில் NHM Writer மென்மத்தைப் (Software) பயன்படுத்தி Phonetic Method முறையில் ஒரு பக்கம் தட்டச்சு செய்து காட்டல்.

பாடநூல்கள் :

1. Tally, நர்மதா பதிப்பம், சென்னை.

2. சுந்தரம்.இல., கணினித்தமிழ், விகடன் பிரசுரம், அண்ணாசாலை, சென்னை-2, முதற்பதிப்பு, 2015

பார்வை நூல்கள் :

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

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

Semester	Course Code	Title of the Course	Hours	Credits
III	21USS3201003	Language - II: English-III	2	2

Effective Communication Skills

Course Outcome

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

Unit- I

(2Hours)

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

(2Hours)

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

(2Hours)

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 mightmay and might(2)

Unit-IV

(2Hours)

Must and have to- must, mustn't and needn't-Should (1) –Should (2)_ Had better , It's timeCan, 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

(2Hours)

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.

Textbooks

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

Semester	Course Code	Title of the Course	Hours	Credits
III	21USS330205	CORE-III Java Programming	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Develop Java programs using OOP principles	K1, K2
CO-2	Develop Java programs with the concepts of Inheritance and Interfaces	K1, K2
CO-3	Build Java applications using exceptions, threads and generics classes	K2, K3
CO-4	Design and implement server-side programs (JSP&Servlet) and develop the enterprise application using EJB and spring frameworks	K3, K4
CO-5	Develop java program in file operations and networking	K3
* K1 :-Knowledge/Remembering; K2 :-Comprehension/Understanding; K3 :-Application/Applying; K4 :-Analysis/Analysing		

Unit-I

(9Hours)

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

(9Hours)

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**(9Hours)**

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.

Unit-IV**(9Hours)****OVERVIEW OF DATA RETRIEVAL & ENTERPRISE APPLICATION**

DEVELOPMENT: JDBC-ODBC Connection-Web Container –Creating Web Application using JSP/Servlets- EJB Container – EJB Types – Session Beans **Introduction to Spring/ Play**

Framework: IOC container-Spring AOP- Spring ORM Layer – Introduction to Hibernate.

Unit-V**(9Hours)**

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.

Books for Study

1. E. Balagurusamy, “Programming with JAVA”, 6th edition McGraw Hill Education (India) Private Limited, Chennai, 2009.

Unit-1chapter 4(sec: 4.1 to 4.5) chapter 7(sec: 7.1 to 7.4) chapter 8(sec: 8.1 to 8.10)

Unit-2chapter 10(sec: 10.1 to 10.5) chapter 11(sec: 11.1 to 11.9)

Unit-3chapter 12(sec: 12.1 to 12.11) chapter 13(sec: 13.1 to 13.9)

Unit-4chapter 18(sec: 18.1 to 18.2) chapter 19(sec: 19.1 to 19.7)

Unit-5chapter 16(16.1 to 16.5)

Books for Reference

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

2. Herbert Schildt,” Java: A Beginner’s Guide McGraw-Hill Education New Delhi,

3. Cay S.Horstmann Core Java®, Volume II—Advanced Features, Ninth Edition

Semester	Course Code	Title of the Paper									Hours	Credit
III	21USS330205	Core –III: Java Programming									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	2	3	1	3	3	3	3	2	2	3	2.5	
CO-2	2	2	3	2	2	1	2	2	2	3	2.1	
CO-3	2	1	2	2	2	2	3	1	2	3	2	
CO-4	2	1	3	2	2	2	1	2	2	2	1.9	
CO-5	2	2	1	3	3	3	1	2	2	3	2.2	
Mean overall score											2.1 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
III	21USS330403	ALLIED -III Operating System	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Gain knowledge on the concepts and principles of Operating System	K2
CO-2	Understand and simulate activities of operating system components	K1
CO-3	How the various elements that underlie operating system interact and provide services for execution of application software	K1,K3
CO-4	The implementation underpinnings of the modern computing infrastructure to be able to effectively utilize the whole spectrum of the modern computing infrastructure	K3
CO-5	Measure, evaluate and compare OS components through instrumentation for performance analysis	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (9 Hours)

INTRODUCTION: Meaning – Mainframe Systems – Multiprocessor Systems – Real-Time Systems. **COMPUTER SYSTEM STRUCTURES:** Computer-System Operation - Storage Hierarchy – Network Structure. **OPERATING SYSTEM STRUCTURES:** System Components - System Calls - Virtual Machines - System Generation.

Unit-II (9Hours)

PROCESS MANAGEMENT: Processes - Process Concept - Operation on Processes - Inter-Process Communication. **CPU SCHEDULING:** Basic Concepts - Scheduling Algorithms - Real Time Scheduling. **PROCESS SYNCHRONIZATION:** Background - Critical-Selection Problem – Semaphores.

Unit-III (9Hours)

DEADLOCKS: System Model - Methods for Handling Deadlocks - Deadlock Prevention- Deadlock Avoidance - Recovery from Deadlock. **MEMORY MANAGEMENT:** Background - Swapping - Paging - Segmentation with Paging. **VIRTUAL MEMORY:** Demand Paging - Page Replacement - Allocation of Frames – Thrashing.

Unit-IV**(9Hours)**

FILE - SYSTEM INTERFACE: File Concept - Access Methods - Directory Structures **File-System Implementation:** File-system Structure - Directory Implementation -Allocation Methods - Efficiency and Performance - Recovery. **MASS STORAGE STRUCTURE:** Disk Structure - Disk Scheduling - Swap-Space Management - Stable-Storage Implementation.

Unit-V**(9Hours)**

PROTECTION: Goals of Protection - Access Matrix - Capability Based Systems - Language-based Protection. **SECURITY:** The Security Problem – User Authentication - Security Systems and Facilities - Encryption.

Books for Study

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, 6th Ed., John Wiley & Sons Inc., New Delhi 2013.

Unit-I Chapter 1 (Sec: 1.1, 1.2, 1.4, 1.7), Chapter 2(Sec: 2.1, 2.4, 2.6),
Chapter 3(Sec: 3.1, 3.3, 3.6, and 3.8)

Unit-II Chapter 4(Sec: 4.1, 4.3, 4.5) Chapter 6(Sec 6.1, 6.3, 6.5) Chapter 7(Sec 7.1, 7.2, 7.4)

Unit-III Chapter 8(Sec: 8.1, 8.3, 8.4, 8.5, 8.7) Chapter 9(Sec: 9.1, 9.2, 9.4, 9.6)
Chapter 10(Sec: 10.2, 10.4, 10.5, and 10.6)

Unit – IV Chapter 11(Sec: 11.1, 11.2, 11.3) Chapter 12(Sec: 12.1, 12.3, 12.4, 12.6, 12.7)
Chapter 14(Sec: 14.1, 14.2, 14.4, and 14.7)

Unit – V Chapter 18(Sec: 18.1, 18.3, 18.6, 18.7) Chapter 19(Sec: 19.1, 19.2, 19.5)

Books for Reference

1. Harvey M. Deitel, “An Introduction to Operating System”, 3rd ed., Addison Wesley, New York, 2003.
2. Andrew S. Tanenbaum, “Modern Operating Systems”, 4th ed., Prentice Hall, New Delhi, 2014.
3. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, 9th Ed., John Wiley & Sons Inc., New Delhi 2013.

Semester	Course Code	Title of the Paper									Hours	Credit
III	21USS330403	Allied-III: Operating System									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	1	3	2	2	3	2	1	3	4	2.4	
CO-2	2	1	3	2	3	3	3	2	2	3	2.4	
CO-3	3	3	2	3	3	2	2	3	2	2	2.5	
CO-4	3	3	1	3	2	3	2	3	3	2	2.5	
CO-5	3	2	3	2	3	3	1	2	3	3	2.5	
Mean overall score											2.46 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
III	21USS341002	SOFT SKILLS	2	2

Module 1: Effective Communication

Definition of communication, Barriers of Communication, Verbal and Non-verbal Communication; Self introduction matrix, Conversation Techniques, Good manners and Etiquettes, Introduction to Professional Communication, Professional Grooming and Presentation Skills and exercises

Module II: Resume Writing & Interview skills

Resume Writing: Basic Resume Formats. Types of Resume - Chronological, Functional and Mixed Resume, Steps in preparation of Resume, Sample objectives, Model Resumes. **Interview Skills:** Preparation for interview, Common interview questions, Attitude, Body Language, Mock interviews and Practicum, Figuring out common interview questions and answers

Module III: Group Discussion: Definition of GD. The salient features of GD, Factors that influence GD, Outcome of GD, Tips for success in GD, Parameters of GD, Essential Points for GD preparation, GD Topics, Model GD and Practicum.

Module IV: Personal Effectiveness: Self Discovery: Personality, Traits of Personality; Personality Tests; Intelligence and Skill Assessment Form. **Goal Setting:** Goal setting Process, Questionnaires & Presentations

Module V: Numerical Ability: Average, Percentage; Profit and Loss, Area, Volume and Surface Area. (Simple Interest, Compound Interest; Time and Work, Pipes and Cisterns; Time and Distance, Problems on Trains, Illustrations, Boats and Streams; Illustrations-Optional)

Module VI: Test of Reasoning - Verbal Reasoning: Series Completion, Analogy. **Non-Verbal Reasoning**

Text Book

Melchias G, Balaiah John, John Love Joy (Eds), 2018. Straight from the Traits: Securing Soft Skills, SJC, Trichy.

References

Aggarwal, R.S. 2010. *A Modern Approach to Verbal and Non Verbal Reasoning*. S.Chand, New Delhi. Covey, Stephen. 2004. *7 Habits of Highly effective people*, Free Press. Egan, Gerard. (1994).

The Skilled Helper (5th Ed). Pacific Grove, Brooks/Cole.

Khera ,Shiv 2003. *You Can Win*. Macmillan Books , Revised Edition.

Melchias G, Balaiah John, John Love Joy (Eds), 2018. *Winners in the Making: A primer on soft skills*. SJC, Trichy.

Other books

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., Adms, Media.

Trishna's 2006. *How to do well in GDs & Interviews*, Trishna Knowledge Systems.

Yate, Martin. 2005. *Hiring the Best: A Manager's Guide to Effective Interviewing and Recruiting**

Semester	Course Code	Title of the Course	Hours	Credits
IV	21USS410004	Language- I: Tamil –IV	2	2

CO NO.	CO- Statement	Cognitive Level (K- level)
இப்பாடத்தின் நிறைவில் மாணவர்கள்		
CO-1	இணையத்தைப் பயன்படுத்தும் அறிவைப் பெறுவர்.	K 1
CO-2	இணையத்தில் தமிழ் இணையப் பக்கங்களை வகைப்படுத்தி விளக்கம் பெறுவர்.	K 2
CO-3	கற்றல் கற்பித்தலில் இணையத்தின் பங்கினை விளக்கும் திறன் பெறுவர்.	K 2
CO-4	தமிழில் இணையப் பக்கம் வடிவமைக்கும் அறிவைப் பெறுவர்	K 3
CO-5	மின்னனாத் தொழில்நுட்பத்தைப் பயன்படுத்தி வலைத்தளம் சார்ந்த அறிவைப் பகுத்தாராய்வர்.	K 4

அலகு -1

(2Hours)

இணையம் - விளக்கம் - w.w.w. விளக்கம் - உலாவி வகைகள்

அலகு -2

(2Hours)

வலையமைப்பு வகைகள் - தேடு பொறிகள் (Search Engines).

அலகு -3

(2Hours)

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

அலகு -4

(2Hours)

HTML அறிமுகம் - தகவல் தொடர்பியல் - பல்வேறு வகையான இணையப் பயன்பாடுகள்.

அலகு -5

(2 Hours)

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

செய்முறைப் பயிற்சிகள்

1. வெவ்வேறு வகையான தேடு பொறிகளின் (Search Engines) அமைப்பு முறைகளைக் (Tools) குறிப்பிடுதல்.

2. Tamil Virtual University, Noolagam போன்ற இணைய தளங்களுக்குள் சென்று அவற்றின் பயன்பாடுகளை அறிதல்.

3. தமிழ் மின்னிதழ்களைப் பட்டியலிடுக.

பாடநூல் :

1. சுந்தரம்.இல., கணினித்தமிழ், விகடன் பிரசுரம், அண்ணாசாலை, சென்னை-2, முதற்பதிப்பு, 2015

பார்வை நூல் :

1. பாஸ்கரன்.க., கணிப்பொறித் தகவல் தொழில்நுட்பம், உமா பதிப்பகம், தஞ்சாவூர்

Semester	Course Code	Title of the Course	Hours	Credits
IV	21USS420104	Language- II: English – IV	2	2

English language and its usage

Course Outcome

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

Unit-I (2Hours)

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

Unit-II (2Hours)

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

Unit-III (2Hours)

Topic areas- Spelling and Punctuation-Word building.

Unit-IV (2Hours)

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

Unit-V (2Hours)

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

Books for Study

1. Swan Michael, Practical English Usage, Oxford University Press

Semester	Course Code	Title of the Course	Hours	Credits
IV	21USS430206	CORE-IV PHP with MySQL	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Gain knowledge on basic concepts of PHP and its applications	K1
CO-2	Understand the various existing libraries for developing application.	K2
CO-3	Apply various technique of web development and will be able to design and develop a complete website	K3
CO-4	Analyse the basic structure of a PHP web application and be able to install and maintain the web server, compile, and run a simple web application.	K3,K4
CO-5	Design and publish simple dynamic websites based on user requirements.	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (9Hours)

ESSENTIAL PHP: Creating your Development Environment- Mixing HTML and PHP – Command Line PHP – Working with Variables – Creating Constants – Understanding PHP’s Internal Data Types – Operators and Flow Control

Unit-II (9Hours)

STRINGS AND ARRAYS: String Function – Modifying Data in an Array – Deleting Array Elements – Array with Loops – PHP Array Functions – Sorting Array – Splitting Array – Merging Array.

Unit-III (9Hours)

CREATING FUNCTION: Passing Function – Passing Arrays to Function – Passing by Reference – Using Default Arguments – Passing Variable Numbers of Argument – Returning Data from Function - Nesting Functions.

Unit-IV**(9Hours)**

WORKING WITH DATABASE: Creating a MYSQL Database – Creating a New Table – Putting Data into the New Database – Accessing the Database –Update data into the Database– Insert data into the Database – Delete data from Database– Handling and Avoiding Errors.

Unit-V**(9Hours)**

LARAVEL FRAMEWORK OVERVIEW: Introduction - Advantages of Laravel - Features of Laravel.Laravel -Installation - Application Structure–Configuration – Routing – Controllers – Request - Response - Laravel Forms and HTML Component.

Books for Study

1. Steven Holzner, “The Complete Reference PHP”, Tata McGraw Hill Pvt. Ltd., 2008

Unit-I Chapter 1, Chapter 2

Unit-II Chapter 3

Unit-III Chapter 4

Unit – IV Chapter 10

2. Web Reference : www.Laravel.com

Unit – V

Books for Reference

1. Leon Atkinson, “Core PHP Programming”, Pearson Education, 2004.
2. James Lee and Brent Lee “Open Source Development with LAMP - Using Linux , Apache, My SQL ,Perl and PHP”, Pearson Education , 2009.
3. Jason Gerner, Elizabeth Naramore , Morgan Owens and Matt Warden, “Professional LAMP - Using Linux , Apache, My SQL and PHP5Web development”, Wiley Publisher, 2006.

Semester	Course Code	Title of the Paper									Hours	Credit
IV	21USS430206	Core-IV: PHP with MySQL									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	2	3	3	3	2	3	3	2	2.6	
CO-2	3	3	2	3	3	3	3	1	3	3	2.7	
CO-3	3	2	3	3	2	3	2	3	3	3	2.7	
CO-4	3	3	2	3	3	3	3	2	3	3	2.8	
CO-5	3	2	3	3	2	3	3	3	2	3	2.7	
Mean overall score											2.7 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
IV	21USS430404	ALLIED-IV Unix and Linux Administration	3	3

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Discuss the importance of Linux operating system	K1
CO-2	Gain knowledge on Unix and Linux configuration file system	K1,K2
CO-3	Unix/linux operating system commands to make effective use of environment to solve problems	K2,K3
CO-4	Demonstrate the role and responsibilities of system administration process	K3,K4
CO-5	Effectively use the UNIX/Linux system to accomplish typical personal, office, technical, and software development tasks	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (9Hours)

Introduction: Introduction to UNIX, Linux, GNU and Linux distributions Duties of the System Administrator, The Linux System Administrator, Installing and Configuring Servers, Installing and Configuring Application Software, Creating and Maintaining User Accounts, Backing Up and Restoring Files, Monitoring and Tuning Performance, Configuring a Secure System, Using Tools to Monitor Security.

Unit-II (9Hours)

System Configuration Files: System wide Shell Configuration Scripts, System Environmental Settings, Network Configuration Files, Managing the init Scripts, Configuration Tool, and Editing Your Network Configuration.

The Network File System: NFS Overview, Planning an NFS Installation, Configuring an NFS Server, Configuring an NFS Client, Using Automount Services, Examining NFS Security.

Unit-III (9Hours)

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

Unit-IV**(9Hours)**

Internet Services: Secure Services, SSH, scp, sftp Less Secure Services (Telnet ,FTP, sync, rsh , rlogin, finger, talk and ntalk, Linux Machine as a Server),Configuring Linux Firewall Packages.
Domain Name System: Understanding DNS, Understanding Types of Domain Servers, Examining Server Configuration Files, Configuring a Caching DNS Server,Configuring a Primary Master Server, Checking Configuration.

Unit-V**(9Hours)**

Configuring a Web Server: Introducing Apache, Configuring Apache, Implementing SSI, Enabling CGI, Enabling PHP, Creating a Secure Server with SSL.

Books for Study

1. Adelstein, Tom. Linux System Administration. Shroff Publishers. 9S021. P7. Mumbai 2007.

Unit-I *Chapter 10, 11, 13*

Unit-II *Chapter 18,*

Unit-III *Chapter 4*

Unit-IV *Chapter 16, 25*

Unit-V *Chapter 21*

2.Christopher Negus, Red Hat Linux 9 Bible, WILEY - Dreamtech India Pvt. Ltd, First Edition, New Delhi, 2003

Books for Reference

1. UNIX: Concepts and techniques, S. Das, Tata McGraw-Hill
2. Linux Administration: A Beginner's Guide, Fifth Edition, Wale Soyinka, Tata McGraw-Hill.
3. Linux: Complete Reference, 6th Edition, Richard Petersen, Tata McGraw-Hill UA-66386825-

Semester	Course Code	Title of the Paper									Hours	Credit
IV	21USS430404	ALLIED-IV Unix and Linux Administration									3	3
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	3	2	1	3	3	2	2	2	2.3	
CO-2	3	3	3	3	2	3	3	3	3	3	2.9	
CO-3	3	3	3	3	1	3	3	3	3	3	2.9	
CO-4	3	3	3	3	2	3	3	3	3	3	2.8	
CO-5	3	3	3	3	2	3	3	3	3	3	2.8	
Mean Overall Score											2.84	
											(High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
IV	21USS441003	Life Coping Skills	2	2

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Understand the life cycle of humanities	K1,K2
CO-2	Identify the various challenges (physical, emotional, and social) faced in adolescence	K2,K3
CO-3	Strengthen their relationships & Empathize with others	K3
CO-4	Acquire success through quality planning	K3,K4
CO-5	Develop positive emotions as well as health Consciousness and various life challenges with their own coping strategies.	K3,K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (2Hours)

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

Unit-II (2 Hours)

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 (2 Hours)

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 (2 Hours)

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

Unit-V (2 Hours)

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

Books for Study

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

Semester	Course Code	Title of the Paper									Hours	Credit
IV	21USS441003	Life Coping Skills									2	2
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	2	3	2	3	2	2	1	2	2	2	2.1	
CO-2	2	2	2	2	1	2	2	2	2	2	1.9	
CO-3	2	2	1	2	2	2	1	2	2	2	1.8	
CO-4	2	1	2	2	2	2	2	2	2	2	1.9	
CO-5	2	2	2	2	1	2	2	2	2	3	2	
Mean overall score											1.9 (Medium)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
V	21USS530208	CORE -V Distributed Technology	4	4

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Gain knowledge of the concepts related to distributed system technologies.	K1,K2
CO-2	Understanding on concepts related ASP. NET technology	K2
CO-3	Design and develop professional console and window-based .NET application	K3
CO-4	Construct the code solutions and develop projects within the .NET framework.	K3,K4
CO-5	Build a dynamic web application using ADO.NET	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (16 Hours)

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

Unit-II (16 Hours)

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

Unit-III (16 Hours)

ASP.NET : Introduction – architecture – ASP.NET Runtime – Internet Information Services – Visual Web Developer Web Server – ASP.NET Parser – Assembly – Page class.

Unit-IV (16 Hours)

Web Server Controls – HTML Controls – Ad Rotator and Calendar controls – Validation Controls – Ajax Controls- State management.

Unit-V (16 Hours)

ADO.NET: System. Data, SqlClient and Xml namespaces – Provider objects and Consumer objects – Disconnected data access – Grid View & Form View.

Books for Study

1. Paul Tremblett, "Instant Enterprise Java y - Beans", Tata McGraw Hill Publishing Company, New Delhi, 2001.

Unit-IChapter 1, 2

2. Dr. C. Muthu, "ASP.NET", Shalom InfoTech Pvt. Ltd., 2011.

Unit -IIChapter 1

Unit- IIIChapter 3

Unit-IVChapter 11, 12

Unit- VChapter 8

Books 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.

3. Platt S David, "Introducing Micorsoft .Net", Prentice Hall of India, New Delhi, 2003.

Semester	Course Code	Title of the Paper									Hours	Credit
V	21USS530208	CORE –V: Distributed Technology									2	2
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	3	3	2	3	3	3	2	2	2.6	
CO-2	3	1	2	2	1	1	2	2	1	1	1.6	
CO-3	3	3	3	3	1	3	3	3	3	2	2.7	
CO-4	3	3	3	3	2	3	3	3	3	2	2.8	
CO-5	3	3	3	3	2	3	3	3	3	2	2.8	
Mean overall score											2.5 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

$\text{Mean Scores of COs} = \frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		$\text{Mean Overall Score} = \frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
V	21USS530209	CORE -VI Software Engineering	4	4

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Basic understanding of software engineering, terminologies, various process models	K1,K2
CO-2	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	K2,K4
CO-3	Examine themselves to function effectively on a team whose members together provide leadership, create a collaborative environment, establish, plan, task and meet objective of software engineering	K3
CO-4	Ability to apply engineering design to produce solutions that meet specified needs with consideration of social economic factors	K3,K4
CO-5	Apply new software models, techniques and technologies to bring out innovative and novelistic solutions for the growth of the society in all aspects and evolving into their continuous professional development.	K2,K3,K4
* K1 :-Knowledge/Remembering; K2 :-Comprehension/Understanding; K3 :-Application/Applying; K4 :-Analysis/Analysing		

Unit I **(16 Hours)**

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 **(16 Hours)**

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 **(16 Hours)**

Software Design: Cohesion and Coupling - Function-Oriented Software Design: Structured Analysis - DFDs - Structured Design - Object Modelling: Overview of Basic Object Orientation Concepts - UML Diagrams - Activity Diagram - State Chart Diagram - User Interface Design:

Characteristics of a Good User Interface - Basic Concepts. Quality Management: Quality Concepts: Software Quality – The Software Quality Dilemma – Achieving Software Quality.

Unit IV

(16 Hours)

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. Risk Management: Software Risks – Risk Identification – Risk Projection – Risk Refinement – Risk Mitigation, Monitoring and Management.

Unit V

(16 Hours)

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.

Books for Study

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

Unit I: *chapter 1(sec: 1.4) chapter 2(sec: 2.2, 2.5)*

Unit 2: *Chapter 2 (sec: 3.1 to 3.7, 3.13) chapter 4(sec: 4.1, 4.2)*

Unit 3: *chapter 5(sec: 5.3) chapter 6(sec: 6.2., 6.3, 6.4) chapter 7(sec: 7.1, 7.3, 7.7, 7.8,) chapter 9(sec: 9.1, 9.2)*

Unit-4*chapter 10(sec: 10.1 to 10.10) chapter 11(sec: 11.1 to 11.4)*

Unit-5*chapter 12(sec: 12.2, 12.4) chapter 13(sec: 13.1, 13.2) chapter 14(sec: 14.4)*

Books for Reference

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

Semester	Course Code	Title of the Paper									Hours	Credit
V	21USS530209	Core –VI : Software Engineering									4	4
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	2	3	2	3	3	3	3	2	2	3	2.6	
CO-2	2	2	3	2	2	2	2	2	2	3	2.2	
CO-3	2	2	2	3	2	2	3	2	2	3	2.3	
CO-4	2	2	3	3	2	2	3	3	2	2	2.4	
CO-5	2	3	3	3	3	3	3	2	2	3	2.7	
Mean Overall Score											2.44 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

$\text{Mean Scores of COs} = \frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		$\text{Mean Overall Score} = \frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
V	21USS530210	CORE -VII RDBMS	4	4

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Understand the basic concepts of the database and data models.	K1
CO-2	Design a database using ER diagrams and mapping ER Relations in software development	K1,K2
CO-3	Acquire the knowledge of query evaluation to monitor the performance of the database administration	K3,K4
CO-4	Build a simple data base system and demonstrate competence with the fundamental tasks involved with modeling, designing and implementing a database management	K3
CO-5	Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.	K3,K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit- I (16 Hours)

INTRODUCTION: File systems versus Database systems – Data Models – DBMS Architecture – Data Independence – Data Modelling using Entity – Relationship Model – Enhanced E-R Modelling.

Unit- II (16 Hours)

RELATIONAL MODEL AND QUERY EVALUATION : Relational Model Concepts – Relational Algebra – SQL – Basic Queries – Complex SQL Queries – Views – Constraints – Relational Calculus – Tuple Relational Calculus – Domain Relational Calculus – Functional Dependencies – Normal Forms – 1NF – 2NF-3NF-BCNF – 4NF-5NF.

Unit -III (16 Hours)

TRANSACTION PROCESSING : Transaction Processing – Properties of Transactions - Serializability – Transaction support in SQL - Locking Techniques – Time Stamp ordering – Validation Techniques – Granularity of Data Items – Recovery concepts – Shadow paging – Log Based Recovery.

Unit -IV (16 Hours)

FILES AND INDEXING: File operations – Hashing Techniques – Indexing – Single level and Multi-level Indexes – B+ tree – Static Hashing - Indexes on Multiple Keys.

Unit -V**(16 Hours)**

SPECIAL PURPOSE DATABASES :OODBMS- - Object-Based Databases - OO Data Model - OO Languages – Persistence – Object Relational Databases - XML – Structure of XML — Cloud based systems – NOSQL introduction - NOSQL key features – Hbase data model – Hbase data operations - Database Tuning -Case Study for Design and Manage the Database for any Project

Books for Study

1. S. K. Singh, “Database Systems Concepts, Design and Applications”, 2nd Edition, Pearson Education, 2006

Unit-Ichapter 1(sec: 1.8) chapter 2(sec: 2.4, 2.6, 2.7)

Unit-IIchapter 4(sec: 4.4, 4.5) chapter 9(sec: 9.2) chapter 10(sec: 10.3, 10.4, 10.5, 10.6)

Unit-III chapter 12(sec: 12.2 to 12.6)

Unit-IV chapter 3(sec 3.4 to 3.6)

Unit-V chapter 15(sec: 15.4)

Books for Reference

1. Abraham Silberschatz, Henry F.Korth and S.Sundarshan “Database System Concepts”, Sixth Edition, McGraw Hill, 2010.
2. C.J. Date, “An Introduction to Database Systems”, Eight Edition, Pearson Education Delhi, 2003.
3. Frank. P. Coyle, “XML, Web Services And The Data Revolution”, Pearson Education, 2012.(UNIT V)

Semester	Course Code	Title of the Paper									Hours	Credit
V	21USS530210	Core -VII :RDBMS									4	4
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	2	3	2	3	2	3	1	2	2	2	2.2	
CO-2	2	2	2	2	1	2	2	2	2	2	1.9	
CO-3	2	2	1	2	2	2	1	2	2	3	1.9	
CO-4	2	1	2	2	2	2	3	2	2	2	2	
CO-5	2	3	3	3	2	2	2	2	2	3	2.4	
Mean Overall Score											2.08 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
VI	21USS630211	CORE -VIII Fundamentals Of Computer Networks	4	4

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Understand fundamental underlying principles of computer networking	K1,K2
CO-2	Investigate the hardware, software, components of a network and the interrelations.	K1,k2
CO-3	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and Technologies	K3,K4
CO-4	Familiarity with the basic protocols of computer networks and how they can be used to assist in network design and implementation	K3,K4
CO-5	Construct various types of networks for processing data	K3,K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (16 Hours)

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

Unit-II (16 Hours)

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

Unit-III (16 Hours)

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 (16 Hours)

Transmission Control Protocol/Internet Protocol: OSI Reference Model and TCP/IP-The Network Layer-Transport Layer-Application Layer-Other File Transfers.

Unit-V (16 Hours)

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

Books for Study

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

Unit-I *Chapter 1*

Unit-II *Chapter 2*

Unit-III *Chapter 3*

Unit – IV *Chapter 5(sec 5.1, 5.2, 5.3, 5.4, 5.5, 5.6)*

Unit – V *Chapter 9*

Books for Reference

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

2. Behrouz A Fourouzan, "Data Communications and Networking", McGraw Hill, Fourth Edition, 2006.

3. William Stallings, "Data and Computer Communications", Prentice Hall of India, Seventh Edition, 2004.

Semester	Course Code	Title of the Paper									Hours	Credit
VI	21USS630211	Core –VIII : Fundamentals Of Computer Networks									4	4
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	1	3	3	2	3	2	3	2	3	2.5	
CO-2	2	2	2	2	3	2	3	3	2	3	2.4	
CO-3	3	2	3	2	2	3	2	2	3	2	2.4	
CO-4	3	2	1	1	3	2	3	3	2	2	2.2	
CO-5	2	3	3	2	2	3	2	3	2	3	2.5	
Mean Overall Score											2.4 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$	
Result	Mean Overall Score	< 1.2	# Low
		≥ 1.2 and < 2.2	# Medium
		≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
VI	21USS630212	CORE -IX Data Analysis using Python	4	4

CO NO.	CO- Statements	Cognitive Levels (K- levels)
CO-1	Understand the important features of Python.	K1
CO-2	Define the fundamentals of the most widely used Python packages and Functions.	K1,K2
CO-3	Perform data preprocessing using NumPy, Pandas	K3
CO-4	Analyze the various scientific problems and provide suitable solutions using various techniques with Python.	K3,K4
CO-5	Visualizing the results of analytics effectively	K4
* K1:-Knowledge/Remembering; K2:-Comprehension/Understanding; K3:-Application/Applying; K4:-Analysis/Analysing		

Unit-I (16 Hours)

Introduction to Python, Why Python for Data Analysis? - Essential Python Libraries – Installation and setup python basics: Data Types, Variables, Basic Input-Output Operations, Basic Operators, Boolean Values, Conditional Execution, Loops, Arrays and Methods.

Unit-II (16 Hours)

Sequence: String, Tuples, List, Dictionaries- Working with Files-, Error and Exception Handling- Modules- Classes and OOPs.

Unit-III (16 Hours)

Introduction to NumPy: Understanding Data Types in Python, The Basics of NumPy Arrays, Computation of NumPy Arrays, Aggregations, Comparisons, Masks, Boolean Logic, Fancy Indexing, Sorting Arrays, Structured Data.

Unit-IV (16 Hours)

Getting started with pandas: Introduction to pandas Data Structures - Essential Functionality - Summarizing and Computing Descriptive Statistics - Handling Missing Data -Hierarchical Indexing.

Unit-V (16 Hours)

Flask Web Framework in Python: Introduction to frame work –Flash overview-Environment-**basic application structure:** Initialization,Routes and View Functions, Server Startup ,A Complete Application ,The Request-Response Cycle, Flask Extensions-**Templates:**The Jinja2 Template Engine ,Rendering Templates ,Variables, Control Structures -**Web Forms:** Cross-Site Request Forgery (CSRF) Protection ,Form Classes ,HTML Rendering of Forms ,Form Handling in View Functions, Redirects and User Sessions ,Message Flashing-**Database:**Database Operations.

Books for Study

1. Wesley J. Chun “Core python programming” Publisher: Prentice Hall PTR, First Edition
ISBN: 0-13-026036-3

Unit -I *Chapter 1, 2, 8*

Unit- II *Chapter 6, 7, 9,10,12,13*

2. Wes McKinney, “Python for Data Analysis”, Published by O’Reilly Media, 2012, ISBN: 978-1-449-31979-3 14 15

Unit- III *Chapter 4*

Unit -IV *Chapter 5*

3. Miguel Grinberg, “Flask Web Development”, Publisher(s): O’Reilly Media, Inc., 2014, 1st Edition, ISBN: 978-1-449-37262-0

Unit- V*part-I pages: 3-25, 37-46, 57-60*

Books for Reference

1. Jake Vander Plas, “Python Data Science Handbook Essential Tools for Working with Data”, O’Reilly Media, 1st edition, 2016.
2. Guido van Rossum and Fred L. Drake Jr, “An Introduction to Python - Revised and Updated for Python
3. Richard Hurley, "Data Science A Comprehensive Guide to Data Science, Data Analytics, Data Mining, Artificial Intelligence, Machine Learning, and Big Data", Ationa Publications, 2020, ISBN:9781952191237, 1952191

Semester	Course Code	Title of the Paper									Hours	Credit
VI	21USS630212	CORE -IX Data Analysis using Python									4	4
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	3	3	3	1	3	3	3	3	3	2.9	
CO-2	3	3	3	3	2	3	3	3	3	3	2.8	
CO-3	3	3	3	3	1	3	3	3	3	3	2.9	
CO-4	3	3	3	3	1	3	3	3	3	3	2.9	
CO-5	3	3	3	3	2	3	3	3	3	3	2.8	
Mean Overall Score											2.86 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

$\text{Mean Scores of COs} = \frac{\text{Sum of values}}{\text{Total No. of POs \& PSOs}}$		$\text{Mean Overall Score} = \frac{\text{Sum of Mean Scores}}{\text{Total No. of COs}}$		
Result	Mean Overall Score		< 1.2	# Low
			≥ 1.2 and < 2.2	# Medium
			≥ 2.2	# High

Semester	Course Code	Title of the Course	Hours	Credits
VI	21USS630213	CORE- X Principles Of Mobile Computing	4	4

S.No.	CO- Statement	Cognitive Level (K- level)
CO-1	Know the evolutions of mobile computing	K1, K2
CO-2	Understand fundamentals of wireless communications	K2
CO-3	Analyze security, mobility, scalability and their unique characteristics in wireless networks	K4
CO-4	Design and develop user interfaces for the android platform	K3, K2
CO-5	Apply java programming concepts in Android application development	K3,K4
* K1 :-Knowledge/Remembering; K2 :-Comprehension/Understanding; K3 :-Application/Applying; K4 :-Analysis/Analysing		

Unit- I (16 Hours)

INTRODUCTION: Applications - A Simplified reference model.– **Wireless transmission:** Frequencies for radio transmission - Signals – Antennas - Signal propagation -Multiplexing - Modulation – Spread spectrum - Cellular systems.

Unit II (16 hours)

Global System for Mobile Communication (GSM) –Universal Mobile Telecommunication System (UMTS). Wireless LAN: Bluetooth architecture-Mobile network layer: mobile IP. Wireless Application Protocol: architecture.

Unit III (16 hours)

GETTING STARTED WITH ANDROID:– what is android?–obtaining the required tools– Launching your first android application-Using Android studio for Android Development: exploring the IDE-using code completion-debugging your application- publishing your application.

Unit IV (16 hours)

UNDERSTANDING THE COMPONENTS OF A SCREEN:- Views and views groups-Frame Layout-Linear Layout(Horizontal)-Linear Layout(Vertical)- Using Relative Layouts- Table Layout-Scroll View.

Unit V**(16 hours)**

USING BASIC VIEWS: Text view Button- Image Button- Edit Text-Check Box-Toggle Button and Radio group views-Using Picker Views-Using List Views to display long list. **CREATING AND USING DATABASES:** Creating DB Adapter Helper Class-Using the Database Programmatically

Books for Study

1. Jochen Schiller, —Mobile communications, Pearson Education, Second Edition 2008.

Unit-I Chapter 2(Pages 25-61)

Unit-II Chapter 4(Pages 96-120,136-143)

2. Beginning Android Programming with Android Studio, John Wiley&Sons,Inc., Fourth Edition 2017

Unit-III Chapter 1(Pages 1-25), Chapter 2(30-44)

Unit-1V Chapter 4(pages 101-116)

Unit-V Chapter 5(pages147-175) Chapter 7(pages 254-260)

Books for Reference

1. Asoke K. Talukder, Hasan Ahmed and Roopa R Yavagal, Mobile Computing, McGraw Hill, Second Edition, 2011.
2. Wei–Meng Lee, Beginning Android Application Development, John Wiley and Sons, Inc, 2012.
3. Dave smith, Jeff friesen “Android Recipes a Problem Solution Approaches” A press, 2011

Semester	Course Code	Title of the Paper									Hours	Credit
VI	21USS63CC09	Core –X: Principles Of Mobile Computing									4	4
Course Outcomes↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)					Mean Scores of COs	
	PO-1	PO-2	PO-3	PO-4	PO-5	PSO-1	PSO-2	PSO-3	PSO-4	PSO-5		
CO-1	3	2	2	3	3	3	2	2	2	2	2.4	
CO-2	2	2	2	3	2	3	3	3	2	1	2.3	
CO-3	3	2	2	3	1	3	2	3	2	2	2.3	
CO-4	2	3	2	2	2	3	2	2	2	3	2.3	
CO-5	3	2	2	2	1	2	3	3	2	2	2.2	
Mean Overall Score											2.3 (High)	

Mapping	<40%	≥40% and <70%	≥70%
Relation	Low Level	Medium Level	High Level
Scale	1	2	3

Mean Scores of COs = $\frac{\text{Sum of values}}{\text{Total No.of POs \& PSOs}}$		Mean Overall Score = $\frac{\text{Sum of Mean Scores}}{\text{Total No.of COs}}$		
Result	Mean Overall Score		< 1.2	# Low
			≥ 1.2 and < 2.2	# Medium
			≥ 2.2	# High

