G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS),

(Re-Accredited with 'A' grade by NAAC| DBT Star College Scheme)

(Affiliated to M.S.University, Tirunelveli)

KOVILPATTI – 628 502.

Department of Information Technology

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BOARD OF STUDIES

for the candidates admitted from the Academic Year 2023-2024 and onwards

Under CBCS PATTERN

CONTENTS

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

The objectives of this Programme is to equip/prepare the students

GPO No.	Programme Educational Objective
PEOs 1	Effectively communicating computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation
PEOs 2	Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.
PEOs 3	Exhibiting their computing expertise within the computing community through corporate leadership, entrepreneurship, and/or advanced graduate study

Programme Outcomes - (PO) (Aligned with Graduate Attributes)

At the completion of the Undergraduate Programme, the student will be able to accomplish the following outcomes:

GPO No.	Programme Outcomes
PO1	Understand the fundamental concepts of Information Technology.
PO2	Gain knowledge on programming language to construct applications and packages to solve real-world problems using Information Technology concepts
PO3	Develop necessary skills to design digital system and acquire knowledge on computer hardware concepts and its functionality.
PO4	Enhance problem solving techniques, analytical and communication skills, team work and potential to develop software and network management.
PO5	Recognize the social and ethical responsibilities of a professional working in the discipline
PO6	Create, select, and apply appropriate techniques, resources, and modern computing and IT tools including prediction and modelling to complex scientific activities with an understanding of the limitations.
PO7	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

AGENDA

- To review the previous Board of Studies meeting minutes.
- Action taken on the suggestions recommended in the previous Board of Studies meeting.
- To approve the revised Programme Structure of B.Sc. Information Technology Degree Programme to maintain uniformity in offering common Courses (as a consequence of induction of Part-I & Part-II Language Courses in Semester III & Semester IV of UG Programmes which have Part I and Part II Language Courses only in the first year as per Communication from Registrar in- charge M.S University dated 29.09.2022. Ref No: MSU/BoS/2022/O-2042 & the references cited therein) for students admitted in 2021-22 and onwards.
- To ratify the transfer of the Part-V Extension activities placed in VI Semester (meaning that it has to be completed before VI Semester) to IV Semester (meaning that it has to be completed before IV Semester)
- To ratify the transfer of Part-IV Employability Enhancement –II to Semester IV as suggested in the third AC Meeting.
- To ratify the transfer of PART-IV Skill Enhancement Course:I Women Studies from Semester IV to Semester V to pave way for the above transfer.
- To ratify the removal of the Part-IV- Proficiency Enhancement Self Study Course MOOC (Online) offered in Semester V with 2 credits for completion of the Course and its inclusion in Semester VI as one of the choices along with Spoken Tutorial (Self Study Course - Online) offered in Semester VI with 2 credits for completion of the Course
- Any other

MINUTES OF THE MEETING
BOARD OF STUDIES

Date & Time: 14.10.2022
Venue: Google Meet (Online) Link:https://meet.google.com/rqb-hvbb-dcm

The Following members attended the Meeting

Chairman	**:**	**Mrs.R. Veeralakshmi, M.Sc(IT)., M.Phil.,** Assistant Professor & Head, Department of Information Technology, G.Venkataswamy Naidu College, Kovilpatti.
University Nominee	**:**	**Dr.R.Balasubramanian,** Professor, Department of Computer Science & Engineering, ManonmaniamSundaranaruniversity, Abhishekapatti, Tirunelveli-12.
Subject Expert 1	**:**	**Dr. T. Kathirvalavakumar,** Associate Professor & Head, Research Centre in Computer Science, V.H.N.S.N College, Virudhunagar –626 201
Subject Expert 2	**:**	**Dr.K.Krishnaveni,** Associate Professor & Head, Department of Computer Science, SRNM College,Sattur-626 203.
Industry Expert	**:**	**A.RajeshAntonirajan** Business Analyst Tata consultancy Services Chennai.
Meritorious Alumnus	**:**	**Mrs.S.Murugeswari,** Programmer, Sports Development Authority of Tamilnadu, Chennai.

The Chair person extended a warm welcome to all the members. At the outset, the Chairperson gave a brief account of Academic activities of the Department.

The Agenda of the Meeting was taken up for discussion.

The following suggestion were given by the Board of Members

1. Suggested to add course related subject (principles of Information Technology) in our curriculam.
2. Advised don't change year of framing for all years.
3. Suggested no need to change subject codes for all years if we revise any subject.
4. Suggested to bring principles of IT paper in first two semester or in third semester in future revision.
5. Suggested to give lab paper relavent to core paper.
6. Suggested to check with university structure for number of many subject and papers are very high.

The Board considered the recommendations from the Board of UG studies dated on 14.10.2022and recommended that all proposals be approved.

All Time

Dr.

MINUTES OF THE MEETING

BOARD OF STUDIES – IV

DATE & TIME : 11/10/2022 & 2.00 PM
VENUE : LAB - II GOOGLE MEET
[meet.google.com/sqb-hvbb-dem]

The following members attended the meeting.

1. Mrs. R. VEERALAKSHMI. – CHAIRMAN
Head, Dept. of Information Technology.
G Venkatesamy Naidu college,
Kovilpatti.

2. Dr. R. BALASUBRAMANIAN. – UNIVERSITY NOMINEE
Professor,
Department of Computer Science & Engineering,
M.S. University, Tirunelveli.

3. Dr. T Kathirvalavakumar, – SUBJECT EXPERT
Associate Professor & Head,
Research Centre in Computer Science,
V.H.N.S.N. College, Virudhunagar,

4. Dr. K. KRISHNAVENI,
Associate Professor & Head,
Department of Computer Science,
S.R.N.M College, Sattur.

5. Mr. RAJESH ANTONIRAJAN.A – INDUSTRY EXPERT
Business Analyst,
Tata Consultancy Services,
Chennai.

All Time
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6. MRS. S. MURUGESWARI. – MERITORIOUS ALUMNI
Programmer,
Sports Development Authority of Tamilnadu,
Chennai.

7. MRS. P. KRISHNAVENI,
Assistant Professor,
Dept. of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

8. MRS. V. SELVARANI,
Assistant Professor,
Dept. of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

9. MRS. K. PRIYADHARSHINI,
Assistant Professor,
Dept of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

10. MRS. N. GOWRI,
Assistant Professor,
Dept of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

11. MR. K. MANIKANDAN,
Assistant Professor,
Dept of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

All Time

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12. MRS S. SUBATHRA,
Assistant Professor,
Dept of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

13. MRS. V. JAMUNA RANI,
Assistant Professor,
Dept. of IT,
G. Venkatasamy Naidu College,
Kovilpatti.

The Chairperson Extended a warm welcome to all the BoS members The Chairperson also gave a brief account of Academic Activities of the department.

The Agenda of the meeting was taken up for the discussion.

The following suggestions were given by the board of members for B.Sc.

→ Suggested to add Course related Subject (Principles of Information Technology in our Curriculum.

→ Advised don't change Year of framing for all years.

→ Suggested no need to change Subject codes for all years if we revise any Subject.

All Time
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→ Suggested to bring principles of IT Paper in first two Semester or in third Semester in future revision.

→ Suggested to give lab paper relavent to Core Paper.

→ Suggested to check with University Structure for number of many Subject and Papers are very high.

The Board Considered Recommendation from the Board of UG dated 14/10/2022 and recommended that all Proposals be approved.

1. MRS. R. VEERALAKSHMI - CHAIR PERSON
2. MRS. P. KRISHNAVENI -
3. MRS. V. SELVARANI -
4. MRS. K. PRIYADHARSHINI -
5. MRS. N. GOWRI -
6. MR. K. MANIKANDAN -

All Time

Dt

7. MRS. S. SUBATHRA - S.Sbt

8. MRS. V. JAMUNA RANI - V.J

PRINCIPAL In-charge
G.VENKATASWAMY NAIDU COLLEGE,
KOVILPATTI - 628 502

MEMBERS IN BOARD OF STUDIES-UG & PG BOARD

Particulars	Name and Designation	Signature
Chair Person	Mrs.R.Veeralakshmi Assistant Professor & Head Department of Information Technology, G. Venkataswamy Naidu College, Kovilpatti.	
Faculty Members	Mrs.P.Krishnaveni Assistant Professor	
	Mrs.V.Selvarani Assistant Professor	
	Mrs.K.Priyadharshini Assistant Professor	
	Mrs.M.Nidyanandam Assistant Professor	
	Mrs.N.Gowri Assistant Professor	
	Mr.M.Manikandan Assistant Professor	
	Mrs.Subathra Assistant Professor	
	Mrs.V.Jamuna Rani Assistant Professor	
Academicians	Dr.T.Kathirvalakumari, Associate Professor & Head, Research centre in Computer Science, V.H.N.S.N College, Viruthunagar.	
	Dr.K.Krishnaveni Associate Professor&Head Department of Computer Science SRNM College,Sattur-626 203.	
University Nominee	Dr.R.Balasubramanian, Professor, Department of Computer Science & Engineering, Manonmaniam Sundaranar university, Abhishekapatti, Tirunelveli-12.	
Industry Expert	A.Rajesh Antonirajan Business Analyst Tata consultancy Services Chennai.	
Meritorious Alumnus	Mrs.S.Murugeswari Programmer, Sports Development Authority of Tamilnadu, Chennai.	

Chair Person Signature with Address

R. Veeralakshmi

Mrs.R.Veeralakshmi, M.Sc.(IT), M.Phil.,
Assistant Professor & Head,
Department of Information Technology,
G. Venkataswamy Naidu College, Kovilpatti

COURSE ELIGIBILITY CRITERIA

Eligibility for Admission:

The candidates for admission into the first semester of the B.Sc degree in Information technology course will be required to have qualified the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Government of Tamilnadu or any other Examinations accepted by the Syndicate as equivalent there to in any subject.

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

Course Structure and Scheme of Examinations

(For students admitted from 2021-22 & onwards)

Parts	No. of Courses	Credit(s) / Course	Total Credits	Proposed Semester
Part – I: Tamil/Hindi	2/4	4	16	I – IV
Part – II: English	2/4	4	16	I – IV
Part - III: Core Courses *(Core Theory /Core Practical/ Allied/ Elective/Project)*		2/3/4/5	104	I-VI
Institutional Training	1	3	3	To be done in Summer Vacation of Semester IV, ESE in Semester V
Part – IV: **A. Ability Enhancement Course** i. Environmental Studies ii. Media and Information Literacy Communication **Foundation Courses:** I. Yoga& Value Education **B. Skill Enhancement Courses:** i. Women Studies ii. Department Specific **C. Employability Enhancement:** **i.** Department Specific **ii.** Department Specific	 1 1 1 1 1 1 1	 2 2 1 2 2 2 2	 4 1 4 4	 I III II V VI III IV
Part - V: **Self Study Course:** General Studies MOOC (Online)/Spoken Tutorial (Online) **Extension Activities:** NSS/YRC/RRC/CCC/PHY.EDU	 1 1 1	 1 2 1	 4	 V VI IV
Total Marks :4300 **Total Credits: 156**				

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BACHELOR OF INFORMATION TECHNOLOGY
COURSE STRUCTURE AND SCHEME OF EXAMINATIONS
CBCS – 2021-2022

Category	Course Type	Course Code	Course Title	Contact Hours	Exam Hours	Marks			Credit
						CIA	ESE	Total Marks	
Semester-I									
PART-I	Language	U21TA1L1	Tamil– I	6	3	25	75	100	4
PART-II	English	U21EN1L1	English for Enrichment - I	6	3	25	75	100	4
PART-III	Core-1	U21IT101	Programming in C	5	3	25	75	100	4
	Core Lab-1	U21IT1P1	Programming in C Lab	5	3	40	60	100	3
	Additional Core -1	U21PS1PE	Professional English for Physical Sciences- I	0	3	25	75	100	4
	Elective-Generic-1 (Allied)	U21IT1A1	Fundamentals of Office Automation Tools and HTML	4	3	25	75	100	2
	Elective-Generic Lab-1 (Allied)	U21IT1AP	Office Automation Tools and HTML Lab	2	3	40	60	100	2
PART-IV	Ability Enhancement:I	U21AE101	Environmental Studies	2	2	-	50	50	2
TOTAL				**30**		**205**	**545**	**750**	**25**
Semester-II									
PART-I	Language	U21TA2L2	Tamil– II	6	3	25	75	100	4
PART-II	English	U21EN2L2	English for Enrichment – II	6	3	25	75	100	4
PART-III	Core-2	U21IT202	Programming with C++	5	3	25	75	100	4
	Core Lab-2	U21IT2P2	Programming with C++ Lab	5	3	40	60	100	3
	Additional Core -2	U21PS2PE	Professional English for Physical Sciences- II	0	3	25	75	100	4
	Elective –Generic-2 (Allied)	U21IT2A2	Digital Design	4	3	25	75	100	2
	Elective –Generic-Lab – 2 (Allied)	U21IT2AP	Image Editing and Designing Lab	2	3	40	60	100	2
	Comprehension – I (Self Study Course- Online Exam)	U21IT2C1	Comprehension in Information Technology-I	-	1	-	50	50	1
PART-IV	Foundation Course	U21FC201	Yoga and Value Education	2	-	50	-	50	1
TOTAL				**30**		**255**	**545**	**800**	**25**

Semester-III									
PART-I	Language	U21TA3L3	Tamil– III	6	3	25	75	100	4
PART-II	English	U21EN3L3	English for Enrichment - III	6	3	25	75	100	4
PART-III	Core-3	U21IT303	Programming with Java	4	3	25	75	100	4
	Core Lab -3	U21IT3P3	Programming with Java Lab	5+2*	3	40	60	100	4
	Core Elective -I	Select any one from Core Elective – I group		5	3	25	75	100	4
PART-IV	Employability Enhancement: I	U21IT3EEA	Introduction to Information Technology	2	-	50	-	50	2
		U21IT3EEB	Web Designing						
	Ability Enhancement: II	U21AE302	Media and Information Literacy Communication	2	2	-	50	50	2
TOTAL				**30**		**190**	**410**	**600**	**24**
Semester-IV									
PART-I	Language	U21TA4L4	Tamil– IV	6	3	25	75	100	4
PART-II	English	U21EN4L4	English for Enrichment - IV	6	3	25	75	100	4
PART-III	Core-4	U21IT404	Relational Database Management System	4	3	25	75	100	4
	Core-5	U21IT405	Operating System	4	3	25	75	100	4
	Core Lab-4	U21IT4P4	Relational Database Management System Lab	3	3	40	60	100	2
	Core Elective - II	Select any one from Core Elective – II group		5	3	25	75	100	4
	Comprehension – II (Self Study Course- Online Exam)	U21IT4C2	Comprehension in Information Technology-II	-	1	-	50	50	1
	Institutional Training/Minor Project	U21IT5IT	Institutional Training/Minor Project	-	0	0	0	0	0
PART-IV	Employability Enhancement:II	U21IT4EEA	Basic Programming Design	2	-	50	0	50	2
		U21IT4EEB	Scripting Languages						
PART-V	Extension Activities-NSS, NCC, YRC, Physical Education, Consumer Club, Youth Welfare, Nature Club & Electoral Literacy Club.			-	0	0	0	Completion	1
TOTAL				**30**		**215**	**485**	**700**	**26**

Semester-V									
PART-III	Core-6	U21IT506	C# .Net Programming	6	3	25	75	100	4
	Core-7	U21IT507	Web Programming using PHP	5	3	25	75	100	4
	Core-8	U21IT508	Software Engineering	5	3	25	75	100	4
	Core Lab -5	U21IT5P5	C# .Net Programming Lab	6	3	40	60	100	3
	Core Lab- 6	U21IT5P6	Web Programming using PHP Lab	6	3	40	60	100	3
	Institutional Training/Minor Project	U21IT5IT	Institutional Training/Minor Project	-	-	40	60	100	3
PART-IV	Skill Enhancement: I	U21SE5S1	Women Studies	2	2	-	50	50	2
PART-V	Self-Study Course	U21GS5SS	General Studies	-	-	-	-	Completion	1
TOTAL				**30**		**195**	**455**	**650**	**24**
Semester-VI									
PART-III	Core-9	U21IT609	Data Communication and Networking	5	3	25	75	100	4
	Core-10	U21IT610	Dynamic web Programming	5	3	25	75	100	4
	Core -11	U21IT611	Programming with Python	4	3	25	75	100	4
	Core Lab -7	U21IT6P7	Dynamic web Programming Lab	5	3	40	60	100	3
	Core Lab -8	U21IT6P8	Programming with Python Lab	5	3	40	60	100	3
	Major Group Project & Viva	U21IT6MP	Major Group Project & Viva	4	3	40	60	100	6
	Comprehension – III (Self Study Course- Online Exam)	U21IT6C3	Comprehension in Information Technology-III	-	1	0	50	50	1
PART-IV	Skill Enhancement: II	U21IT6S2	Introduction to Data Mining	2	2	-	50	50	2
	Extra Department Course open Elective –(Self Study Course)	To be selected from the courses offered by other departments		-	-	-	100	100	3
PART-V	Spoken Tutorial /MOOC (Self Study Course - Online)			-	0	0	0	Completion	2
TOTAL				**30**		**195**	**605**	**800**	**32**

List of Core Electives offered:

Core Elective – I Group

S.No	Subject Code	Subject Name
1	U21IT3E1A	Data Structure
2	U21IT3E1B	Multimedia Technology
3	U21IT3E1C	Computer Archittecture

Core Elective – II Group

S.No	Subject Code	Subject Name
1	U21IT4E2A	Operations Research & Numerical Analysis
2	U21IT4E2B	Software Testing
3	U21IT4E2C	Object Oriented Analysis and Design

Open Elective offered by other Departments:

S.No	Name of the Department	Course Title	Course Code
1.	Mathematics	Quantitative Aptitude	U21MA6OE
2.	Physics	Physics in Everyday Life	U21PH6OE
3.	Chemistry	Chemistry in day to day Life	U21CH6OE
4.	Botany	Herbal Medicine	U21B06OE
5.	Computer Science	MS-Office	U21CS6OE
6.	Electronics	Electronic Gadgets and Home Appliances	U21EL6OE
7.	Costume Design & Fashion	Basic Illustration	U21CF6OE
8.	Information Technology	Fundamentals of Computer and Networking	U21IT6OE
9.	Statistics	Applied Statistics	U21ST6OE
10.	English	Practical English	U21EN6OE
11.	Business Administration	Inspiring Leaders	U21BB6OE
12.	Commerce	Fundamentals of Stock Market	U21CO6OE
13.	Professional Accounting	Indian Business Environment	U21PA6OE
14.	Business Analytics	Business Ethics	U21BA6OE
15.	Computer Application	Computer Basics	U21CA6OE

Category	Credits
Part - 1	16
Part - 2	16
Part - 3	104
Part - 4	14
Part - 5	4
Core Credits	96
Total Credits	156
Total Marks	**4300**

SYLLABUS

CORE- 1: PROGRAMMING IN C

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core – 1	U21IT101	Programming in C	65	10	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
First	**First**	**25**	**75**	**100**

PREAMBLE

This course helps the students to develop the logic and ability to solve the problems efficiently using C programming. To learn various concepts and techniques of solving the problem and implement those ideas using C programs.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the fundamentals of Constants, Variables and Data Types, Decision making and Branching.	K1, K2
CO2	apply the concept of Operators and Expressions, Arrays, Structure and Union.	K3
CO3	analyze the concept of Input and Output Operations, different types of arrays, and pointers.	K4
CO4	evaluation of Expressions, Precedence of Arithmetic Operators, Arithmetic Operations on characters.	K5
CO5	create the new programs using the concept of User-defined functions, Pointers and Files	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	3	2	2	3	1	2
CO2	2	2	2	2	2	2	1
CO3	2	2	2	2	1	2	3
CO4	1	1	1	2	1	1	1
CO5	1	1	1	1	1	2	1
Total Contribution of COs to POs	**9**	**9**	**8**	**9**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**60**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE- 1: PROGRAMMING IN C – (U21IT101)

COURSE CONTENT

UNIT-I: OVERVIEW OF C (L-12 HOURS)

Overview of C: History of C, Importance of C, and Basic Structure of C programs, Programming Style. **Constants, Variables and Data Types-** Character set, C Tokens, Keywords and Identifiers, Constants, Variables, Data Types, Declaration of Variables, Declaration of Storage Class, assigning values to variables, Defining symbolic constants, Declaring a Variable as Constant. **Operators and Expressions-** Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions, Operator Precedence and Associativity.

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UNIT-II: MANAGING I/O OPERATIONS & DECISION MAKING (L-12+T-2 HOURS)

Managing Input and Output Operations: Reading a character, Writing a character, Formatted Input, Formatted Output. **Decision making and Branching-** Decision making with IF, Simple IF Statement, The IF-ELSE statement, Nesting of IF, ELSE Statements, The IFELSE Ladder, The Switch statement, The Ternary operator, The GOTO statement. **Decision Making and looping -**The WHILE statement, The DO Statement, The FOR Statement, Jumps in loops, Concise test expressions.

UNIT-III: ARRAYS (L-13+T-2 HOURS)

Arrays: One Dimensional Arrays, Two Dimensional Arrays, Multi-dimensional Arrays, Dynamic Arrays.

Character Arrays and Strings- Declaring and initializing String Variables, Reading Strings from Terminal, Writing Strings to Screen, Arithmetic Operations on characters, putting strings together, Comparing two strings, String handling functions, Array of Strings.

UNIT-IV: USER DEFINED FUNCTIONS (L-14 + T-3 HOURS)

User Defined Functions: Need for user defined functions, elements of User-defined functions, Definition of function, Function calls, Function Declaration, Nesting of Functions, Recursion, Passing Arrays to functions, Passing String to functions, Scope, Visibility and lifetime of variables.

Structure and Union: Defining Structure, declaring structure variables, Accessing Structure members, Structure Initialization, copying and comparing structure variables, Operations on individual members, Array of Structures, Array within Structures, Structure within Structure, Structure and functions, Unions.

UNIT-V: POINTERS &FILE MANAGEMENT (L-14 + T-3 HOURS)

Pointers: Understanding pointers, Accessing the address of a variable, Declaring Pointer variables, Initialization of pointer variables, accessing a variable through its pointer, Chain of Pointers, Pointer expression, Pointers and arrays, Array of pointers, Pointers and functions, Pointers as function arguments, Functions returning pointers, Pointers and structures.

File Management in C- Defining and Opening a File, Closing a File, Input/output Operations on Files, Error Handling-I/O Operations, Random Access to Files, Command Line Arguments.

TEXT BOOKS:

1. E. Balagurusamy," Programming in ANSI C", Tata McGraw Hill Education India Pvt, Seventh Edition,2016.
2. C, "The Complete Reference", Fourth Edition, Schildt and Herbert, McGraw Hill Publishing,2017.

REFERENCE BOOKS:

1. Yashavant Kanetkar, “Let us C”, BPB Publications; 15th Revised and Updated edition,2016.
2. Salim Y. Amdani, “C Programming” Laxmi Publications; First edition,2016.
3. Brain W.Kernighan, Dennis M.Ritchie, ANSI C,”The C Programming Language”, 2nd Edition, Pearson Publication, 2012.

WEB REFERENCE:

1. http://www.java2s.com/Tutorial/C/CatalogC.htm
2. http://www.cplusplus.com/doc/tutorial/
3. http://phy.ntnu.edu.tw/~cchen/ctutor.pdf
4. http://www.cprogramming.com/tutorial.html
5. http://www2.its.strath.ac.uk/courses/c/
6. http://www2.its.strath.ac.uk/courses/c/
7. http://www.cs.wustl.edu/~schmidt/C++/
8. http://www.programmingtutorials.com/c.aspx

CORE LAB -1: PROGRAMMING IN C LAB

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 1	U21IT1P1	Programming in C Lab	-	-	75	3

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
First	**First**	**40**	**60**	**100**

PREAMBLE

To provide the students a strong foundation on programming concepts and its application. It also enables the students to solve problems using programming logic.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and Understand the basic concept of C Programming	K1,K2
CO2	practice the use of conditional and looping statements	K3
CO3	implement arrays, strings and pointers	K4
CO4	implement recursion method and structure	K5
CO5	gain skills to handle strings and files	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	2	1	1	**2**	2	1
CO2	1	1	1	1	1	1	1
CO3	1	1	1	1	1	-	1
CO4	1	1	1	1	1	1	1
CO5	1	1	1	2	1	1	1
Total Contribution of COs to Pos	**10**	**9**	**8**	**10**	**8**	**9**	**9**
Weighted Percentage of COs Contribution to POs	**66**	**60**	**53**	**66**	**53**	**60**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE LAB -1: PROGRAMMING IN C LAB-(U21IT1P1)

LIST OF PRATICALS

WRITE A C PROGRAM:

1. To do temperature conversion.
2. To find whether the given year is leap year or not.
3. To prepare student performance using else if ladder.
4. To check whether the given number is prime or not.
5. To solve the quadratic equation using Switch statement.
6. To generate a Fibonacci series.
7. To find the transpose of a given matrix.
8. To multiply two given matrices.
9. To check whether the given string is palindrome or not using string functions.
10. To display sum of series 1 + 1/2 + 1/3 + ……. + 1/n.
11. To find the smallest of three numbers using function.
12. To find factorial value of a number using recursion.
13. To prepare Student mark sheet using structure.
14. To prepare EB bill using array of structure.
15. To sort the given array of numbers using pointers.
16. To identify the odd and even numbers in a file and write the results in different files.

TEXT BOOKS:

1. E.Balagurusamy,"Programming in ANSI C",Tata McGraw Hill Education India Pvt, Seventh Edition, 2016.
2. C, "The Complete Reference", Fourth Edition, Schildtand Herbert, McGraw Hill Publishing, 2017.

REFERENCE BOOKS:

1. YashavantKanetkar, "Let us C", BPB Publications; 15th Revised and Updated edition, 2016.
2. Salim Y. Amdani, "C Programming" Laxmi Publications; First edition, 2016.
3. Brain W.Kernighan, Dennis M.Ritchie, ANSI C,"The C Programming Language", 2nd Edition, Pearson Publication, 2012.

WEB REFERENCE:

1. http://www.java2s.com/Tutorial/C/CatalogC.htm
2. http://www.cplusplus.com/doc/tutorial/
3. http://phy.ntnu.edu.tw/~cchen/ctutor.pdf
4. http://www.cprogramming.com/tutorial.html
5. http://www2.its.strath.ac.uk/courses/c/
6. http://www2.its.strath.ac.uk/courses/c/
7. http://www.cs.wustl.edu/~schmidt/C++/
8. http://www.programmingtutorials.com/c.aspx

Additional Core-1 : Professional English for Physical Sciences- I (U21PS1PE)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part –III	Additional Core -1	U21PS1PE	Professional English for Physical Sciences - I	60	-	-	4

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
First	First	25	75	100

Preamble:

The Course is aimed at developing the language skills of learners by enhancing the lexical, grammatical and socio-linguistic and communicative competence of first year Physical Sciences students, developing students' knowledge of domain specific registers and the required language skills, developing strategic competence that will help in efficient communication and sharpening students' critical thinking skills.

Course Outcomes (COs):

On successful completion of the course, the learners should be able to

CO No.	Course Outcome	Knowledge Level
CO1	recognize their own ability to improve their own competence in using the language and communicate effectively	K1
CO2	understand the goal of descriptive language to describe an event by paying close attention to details by using all five senses	K2
CO3	apply negotiation skills to sort out differences and achieve the best possible outcome	K3
CO4	analyse the ways to speak effectively at public events, present their ideas in a precise manner and deliver effective and engaging presentations	K4
CO5	evaluate and apply critical thinking skills to identify the problem and make logical decisions based on all the facts and information available	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

COURSE CONTENT
PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES – I (U21PS1PE)

Unit I:

Communication

Listening: Listening to audio text and answering questions - Listening to Instructions.
Speaking: Pair work and small group work.
Reading: Comprehension passages –Differentiate between facts and opinion.
Writing: Developing a story with pictures**.**
Vocabulary: Register specific - Incorporated into the LSRW tasks.

Unit II:

Description

Listening: Listening to process description.-Drawing a flow chart. **Speaking:** Role play (formal context).
Reading: Skimming/Scanning- Reading passages on products, equipment and gadgets.
Writing: Process Description –Compare and Contrast Paragraph-Sentence Definition and Extended definition- Free Writing.
Vocabulary: Register specific -Incorporated into the LSRW tasks.

Unit III:

Negotiation Strategies

Listening: Listening to interviews of specialists / Inventors in fields (Subject specific)
Speaking: Brainstorming.(Mind mapping). Small group discussions (Subject- Specific)
Reading: Longer Reading text.
Writing: Essay Writing (250 words)
Vocabulary: Register specific - Incorporated into the LSRW tasks.

Unit IV:

Presentation Skills

Listening: Listening to lectures.
Speaking: Short talks.
Reading: Reading Comprehension passages.
Writing: Writing Recommendations Interpreting Visuals inputs.
Vocabulary: Register specific - Incorporated into the LSRW tasks

Unit V:

Critical Thinking Skills

Listening: Listening comprehension- Listening for information.
Speaking: Making presentations (with PPT- practice).
Reading: Comprehension passages –Note making. Comprehension: Motivational article on Professional Competence, Professional Ethics and Life Skills).
Writing: Problem and Solution essay– Creative writing –Summary writing.
Vocabulary: Register specific - Incorporated into the LSRW tasks.

Books:

1. Isaac Assimov – *I, Robot* (film also available)
2. Isaac Assimov – *The Last Question*
3. Antoine De Saint Exupery – *The Little Prince*
4. Philip K. Dick – *Do Androids Dream of Electric Sheep?*
5. Stephen Hawking – *A Brief History of Time*

Channels/Videos:

1. Discovery Channel
2. National Geographic Channel
3. Kurzgesagt (videos on YouTube)
4. Joe Scott (videos on YouTube

ELECTIVE-GENERIC- 1 (ALLIED): FUNDAMENTALS OF OFFICE AUTOMATION TOOLS AND HTML

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Elective Generic-1 (Allied)	U21IT1A1	Fundamentals of Office Automation Tools and HTML	55	05	-	2

Contact hours per semester: 60
Contact hours per week: 4 (3+1)

Year	Semester	Internal Marks	External Marks	Total Marks
First	**First**	**25**	**75**	**100**

PREAMBLE

This course helps the students to learn basic computer skills such as, Microsoft Word, Microsoft Excel, Microsoft PowerPoint and Microsoft Access. And know the usage of HTML Script and design a web page using HTM tags and Script.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn the basics of MS-Word, Excel, Power Point Access and HTML.	K1,K2
CO2	understand about editing the document, working in sheets, Tags in HTML.	K3
CO3	apply the concepts of Formatting the Text, Mail Merge, formulas and functions, Graphics, Charts and Frames.	K4
CO4	analyse and evaluate the Mathematical Calculations.	K5
CO5	create the custom style of document, animations, and webpages.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2
CO4	2	2	1	1	2	2	1
CO5	2	2	1	1	1	1	1
Total Contribution of COs to POs	**10**	**10**	**8**	**8**	**9**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**66**	**66**	**53**	**53**	**60**	**60**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

ELECTIVE-GENERIC -1(ALLIED): FUNDAMENTALS OF OFFICE AUTOMATION TOOLS AND HTML- (U21IT1A1)

COURSE CONTENT

UNIT-I: MICROSOFT WORD (L–11+T-1 HOURS)

Microsoft Word: Word processor Basics, Introduction to word, Saving the Document, Previewing, Printing, Closing, Changing the size of a document. **Editing the Document**- Opening an existing word document, making changes in your document, Checking Spelling in the Document, Automatic correction of errors, Printing the file, Saving and Closing the Document, designing your Document, Creating Tables, Inserting Rows, Inserting Columns, Deleting a Row, Deleting a Column, Formatting the Text, Mail Merge.

UNIT-II: MICROSOFT EXCEL (L-12 + T-1 HOURS)

Microsoft Excel : Introduction to Spreadsheets, Use of Spreadsheet, Spreadsheet Basics, formatting a Spreadsheet, Graphs, Functions of Microsoft Excel, Excel Work Environment, Changing size of a Work book and Excel Window, Cell and Cell Address, Standard Toolbar, Formatting toolbar, the Formula bar, Status bar, Components of an Excel Workbook. **Working in Excel**- Entering data in cell address, making changes to an entry, Mathematical Calculations, Formulas using numbers, Formula using Cell address, Defining functions simple Graphs.

UNIT-III: MICROSOFT POWERPOINT & MICROSOFT ACCESS (L-11+ T-1 HOURS)

Microsoft PowerPoint: Creating a presentation, working with views, Adding Graphics, Charts and Tables, Masters, Using Slide Transition. **Microsoft Access:** Introduction to Databases, Defining a Database, Understanding Database , Creating database, Creating a Table, Working on Tables, Saving the Table, Defining primary Key .

UNIT-IV: HTML (L-10 + T-1 HOURS)

HTML: Basic concepts of HTML, The tag, The Basic tags, the text attributes, the images, HTML forms.

UNIT-V: LISTS, TABLES & FRAMES (L-11+ T-1 HOURS)

Lists: The list tag, the links. **Tables:** Introduction to Tables, the table, the rows, the columns, the table border, vertical headers of Table, Cell spacing, Cellpadding, Alignment of table.

The Frames: Introduction to frames, Frames with column arrangement, column size for frames, distributing frame columns evenly, Row arrangement, Row size, distributing frame rows evenly, Frame spacing, Frame border.

TEXT BOOKS:

1. Comdex Computer Course Kit, Vikas Gupta, (XP Edition), 2009, Dreamtech Press, New Delhi.
2. HTML for beginners, Firuza Aibara , 2nd Edition, 2010, Shrott Publishers and Distributors Pvt. Ltd.,

REFERENCE BOOKS:

1. Introduction to Computers, Peter Norton, sixth edition, 2008, McGraw Hill Companies.
2. The Complete Reference Office 2000, Stephen L. Nelson, 1999, Tata McGraw – Hill Publishing Company Limited, New Delhi.
3. Computer Fundamentals and windows with Internet Technology –N. Krishnan, 2018, Scitech Publications (India) Pvt Ltd ,
4. HTML The Complete Reference, Thomas A.Powell, Second Edition, McGraw Hill Osborne Medi, 2003.
5. HTML & Web Design Tips & Techniques Tips and Techniques, Jamsa Kris, Andy Anderson,Konrad King, McGraw Hill, India, 2002.

WEB REFERENCE:

1. https://www.docsity.com/en/office-automation-computer-fundamentals-lecture
2. https://khpditweebly.weebly.com/office-automation-notes.html
3. https://codescracker.com/bca/bca-computer-fundamental-and-office-automation.htm
4. https://html.com/
5. https://www.kullabs.com/classes/subjects/units/lessons/notes/note-detail/1191
6. https://www.cs.uct.ac.za/mit_notes/web_programming.html
7. https://www.geeksforgeeks.org/html-basics/
8. https://www.yourhtmlsource.com/starthere/whatishtml.html

ELECTIVE- GENERIC LAB-1 (ALLIED): OFFICE AUTOMATION TOOLS AND HTML LAB(U21IT1AP)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Elective - Generic Lab – 1(Allied)	U21IT1AP	Office Automation Tools and HTML Lab	-	-	30	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
First	**First**	**40**	**60**	**100**

PREAMBLE

The subject aims to build the concepts regarding knowledge on office automation tools such as Microsoft Word, Microsoft Excel, Access and PowerPoint and to understand about html tags for web designing.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the basic concept of word, excel, power point, access and HTML	K1, K2
CO2	apply the concepts of Formatting the Text, Mail Merge, formulas and functions, Graphics, Charts and Frames	K3
CO3	apply formulas, functions in excel.	K4
CO4	analyse the Mathematical Calculations	K5
CO5	create a database, animations, and webpages.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	2	2	2	2
CO2	2	2	1	2	2	2	2
CO3	2	2	1	2	2	1	2
CO4	2	2	2	1	1	1	2
CO5	1	1	2	1	1	2	1
Total Contribution of COs to POs	**10**	**9**	**8**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to POs	**66**	**60**	**53**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

ELECTIVE- GENERIC LAB-1(ALLIED): OFFICE AUTOMATION TOOLS AND HTML LAB(U21IT1AP)

LIST OF PRACTICALS

MS-WORD:

1. Prepare a word document and Insert Header and Footer
2. Preparer a Bio-Data and insert the contents of qualification within the table.
3. Mail Merge

MS – EXCEL:

1. Apply formulas and functions
2. Prepare a chart for population growth.

MS – POWERPOINT:

1. Create a power point presentation with animation.
2. Create a power point presentation with 4 slides. Set slide transition time of 3 seconds and display your presentation.

MS – ACCESS:

1. Create a student database. Set a field to primary key.
2. Create a salary bill preparation with report.

HTML:

1. Develop a HTML document for your profile. Design the page with background color, text color, and suitable headings in different formats.
2. Develop a HTML document for our college course details. Design the page with nested
3. Ordered and unordered lists.
4. Design your class timetable using table tags.
5. Develop a HTML document for your department with the list of items shown in a frame. When you click an item, the details of the item must appear in another frame.
6. Develop a HTML document using form attributes.
7. Design our college website.

TEXT BOOKS:

1. Comdex Computer Course Kit, Vikas Gupta, (XP Edition), 2009, Dreamtech Press, New Delhi.
2. HTML for beginners, FiruzaAibara , 2nd Edition, 2010, Shrott Publishers and Distributors Pvt. Ltd.,

REFERENCE BOOKS:

1. Introduction to Computers, Peter Norton, sixth edition, 2008, McGraw Hill Companies.
2. The Complete Reference Office 2000, Stephen L. Nelson, 1999, Tata McGraw – Hill Publishing Company Limited, New Delhi.
3. Computer Fundamentals and windows with Internet Technology N.Krishnan, 2018, Scitech Publications (India) Pvt Ltd.
4. HTML The Complete Reference ,ThomasA.Powell, Second Edition, McGraw Hill Osborne Media, 2003.
5. HTML & Web Design Tips & Techniques Tips and Techniques, Jamsa Kris,Andy Anderson,Konrad King,McGraw Hill,India, 2002.

WEB REFERENCE:

1. https://www.docsity.com/en/office-automation-computer-fundamentals-lecture-slides/286724/
2. https://khpditweebly.weebly.com/office-automation-notes.html
3. https://codescracker.com/bca/bca-computer-fundamental-and-office-automation.html
4. https://html.com/
5. https://www.kullabs.com/classes/subjects/units/lessons/notes/note-detail/1191
6. https://www.cs.uct.ac.za/mit_notes/web_programming.html
7. https://www.geeksforgeeks.org/html-basics/
8. https://www.yourhtmlsource.com/starthere/whatishtml.html

ABILITY ENHANCEMENT-I Environmental Studies (U21AE101)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – IV	AECC1	U21AE101	Environmental Studies	30	-	-	2

Contact hours per Semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
First	**First**	**-**	**50**	**50**

Preamble

The Course is designed to provide Students knowledge about the basic concepts, components and importance of environment.

Course Outcomes

On successful completion of the Course, the learners will be able to

S. No.	Course Outcome	Knowledge Level
1.	define the structure and functions of ecosystem	K1
2.	explain the benefits of biodiversity conservation	K2
3.	summarise the sources, effects and control measures of various types of Pollution	K3
4.	perceive the environment legislations in India for sustainable development.	K4
5.	evaluate appropriate techniques, resources, and modern instruments and equipments to control the pollutants	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

COURSE CONTENT

ENVIRONMENTAL STUDIES (U21AE101)

Unit I: (L-6 Hours)

Definition and Scope of Environmental Studies – Ecology and Ecosystem – Structure of an Ecosystem – Types & Function of Ecosystem - Food chains, food webs, energy flow and ecological pyramids.

Unit II: (L-6 Hours)

Environmental problems and Management: Causes, effects and Control measures of Air Pollution – Water Pollution – Noise Pollution – Nuclear Hazards. Solid waste management and Waste Disposal methods.

Unit III: (L-6 Hours)

Biodiversity and its conservation: Introduction-definition, Types of diversity: genetic, species and ecosystem biodiversity. Value of biodiversity: Consumptive use, productive use, social, ethical and aesthetic values. Biodiversity at global, national and local levels.

Unit IV: (L-6Hours)

Environment protection Act, Wildlife protection Act, Forest conservation Act, Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Environment Impact Assessment (EIA).

Unit V: (L-6 Hours)

Climate change and Global Warming causes and Measures. Disaster management: floods, earthquake, cyclone and landslides. Social issues and the Environment: Rain water harvesting, watershed management.

Text Books :

1. P.D.Sharma.2003. Ecology and Environment. Rastogi Publication.
2. N. Arumugam and V. Kumaresan. Environmental Studies. Saras Publication.

Reference Books :

1. Agarwal. K.C. 2001. Environmental Biology, Nidi Publications Limited, Bikaner.
2. A.K.De. 1999. Environmental Chemistry, Wiley Eastern Limited, India.
3. Jadhav,H. and Bhosale, V.M.1995. Environmental Protection and Laws,Himalaya Publishing House, Delhi. pp284.
4. Odum, E.P.1971. Fundamentals of Ecology, W.B.Saunders Co., USA. pp.574.

E-References :

1. Biodiversity: https://www.pmfias.com/biodiversity-hotspots-india/
   https://byjus.com/free-ias-prep/biodiversity/
2. Pollution; https://www.livescience.com/22728-pollution-facts.html
   https://sciencing.com/types-pollutants-5270696.html
3. Wildlife Protection Act:
   https://www.indiacode.nic.in/handle/123456789/1726?view_type=browse&sam_handle=123456789/1362
4. https://byjus.com/free-ias-prep/wildlife-protection-act-1972/

Semester-II

CORE-2: PROGRAMMING WITH C++(U21IT202)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core – 2	U21IT202	Programming with C++	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
First	**Second**	**25**	**75**	**100**

PREAMBLE

This course helps the students to learn the concept of C++ Programming. To learn various concepts and techniques of solving the problems and implement those ideas using C++ programs.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the basic concepts of Basic Concepts of Object-Oriented Programming, Function Prototyping, Constructors, and Pointers	K1, K2
CO2	apply the concepts of structure, member functions, operator overloading, files and Exception handling.	K3
CO3	analyze the concept of basic keywords, functions, structures and Overloading, Type Conversion, files, I/O Operations and error handling.	K4
CO4	evaluate the concept of controls structures, Memory Allocation for Objects, arrays, Virtual Functions.	K5
CO5	build programs using inheritance, Pointers, Virtual function and Polymorphism Templates, file management and exception handling.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	2
CO2	2	2	2	1	2	2	2
CO3	2	1	2	2	1	2	2
CO4	2	2	1	2	2	1	1
CO5	1	2	1	2	1	2	1
Total Contribution of COs to Pos	**9**	**9**	**8**	**9**	**8**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**60**	**53**	**60**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE-2: PROGRAMMING WITH C++ (U21IT202)

COURSE CONTENT

UNIT I: PRINCIPLES OF OBJECT-ORIENTED PROGRAMMING

(L – 14 + T-1 HOURS)

Principles of Object-Oriented Programming: Software Evolution, Object-Oriented Programming Paradigm, Basic Concepts of Object Oriented Programming, Benefits of OOP, Object Oriented Languages, Application of OOP. **Beginning with C++:** What is C++? , A Simple C++ Program, More C++ Statements, an Example with Class, Structure of C++ Program. **Tokens, Expressions and Control Structures:** Tokens, Keywords, Identifiers and Constants, Basic, User-Defined, Derived Data Types, Operators in C++, Control Structures.

UNIT II: FUNCTIONS IN C++ (L–14 + T-1 HOURS)

Functions in C++: Function Prototyping, Call by Reference, Inline Functions, Default Arguments, Function Overloading. **Classes and Objects:** Specifying a Class, Defining Member Functions, Nesting of Member Functions, Memory Allocation for Objects, Static Data Members, Static Member Functions, Array of Objects, Object as Function Arguments, Friend Functions, Returning Objects.

UNIT III: CONSTRUCTORS AND DESTRUCTORS (L-14 + T-1 HOURS)

Constructors and Destructors: Constructors Parameterized Constructors, Multiple Constructors in a Class, and Constructors with Default Arguments, Copy Constructor, and Destructors.

Operator Overloading And Type Conversion: Defining Operator Overloading, Overloading Unary Operators, Overloading Binary Operators, Rules for Overloading Operators, Type Conversions.

Inheritance: Defining Derived Classes, Types of Inheritance, Virtual Base Classes.

UNIT IV: POINTERS, VIRTUAL FUNCTIONS AND POLYMORPHISM

(L-14 + T-1 HOURS)

Pointers: Pointers, Pointers to Objects, this pointer, Pointers to Derived Classes. **Virtual Functions:** Virtual Functions, Pure Virtual Functions. **Working with Files:** Classes for File Stream Operations, Opening and Closing a File, Detecting end-of-file, More about Open (): File Modes, File Pointers and their Manipulators, Sequential Input and Output Operations, Error Handling During File Operations, Command-line Arguments.

UNIT V: TEMPLATES **(L-14 + T-1 HOURS)**

Templates: Classes Templates, Class Templates with Multiple Parameters, Function Templates. **Managing Console I/O Operations:** C++ Streams, C++ Stream Classes, Unformatted I/O Operations, Formatted Console I/O Operations, Managing Output with Manipulators. **Exception Handling:** Exception Handling Mechanism, Throwing Mechanism, Catching Mechanism, Rethrowing an Exceptions

TEXT BOOKS:

1. E. Balagurusamy, Object Oriented Programming with C++, Seventh edition, Tata McGraw Education Hill, Delhi, 2017.

REFERENCE BOOKS:

1. A.K.Sharma, Object Oriented Programming with C++, Pearson Education, Delhi, 2014.
2. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C++, First Edition, Pearson India, 2003.
3. Herbert Schildt, C++,"The Complete Reference", Fourth Edition, McGraw Hill Publishing, 2003.
4. Souravsahay, Object-oriented programming with C++, Second edition, OxfordUniversity press 2006.
5. Robert Lafore, Object Oriented Programming in Turbo C++, Fourth Edition, Galgotia Publications, 2008.
6. D Ravichandran, Programming with C++, Second edition, Tata McGraw Hill,2003

WEB REFERENCES:

1. https://www.geeksforgeeks.org/object-oriented-programming-in-cpp/
2. https://www.tenouk.com/cplusplustutorial.html
3. https://www.edx.org/learn/c-plus-plus
4. https://www.bestdotnettraining.com/c-plus-plus-online-training
5. https://www.programiz.com/cpp-programming
6. http://www.cplusplus.com/
7. https://www.tutorialspoint.com/cplusplus/index.htm

CORE LAB- 2: PROGRAMMING WITH C++ LAB (U21IT2P2)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 2	U21IT2P2	Programming with C++ Lab	-	-	75	3

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
First	**Second**	**40**	**60**	**100**

PREAMBLE

This laboratory course will enable the students to identify, formulate all techniques of software development in the C++ Programming Language and demonstrate these techniques by solving variety of problems spanning the breadth of the language.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the concepts of oops for building object-based applications.	K1, K2
CO2	practice the use of conditional and looping statements.	K3
CO3	analyse arrays, strings, pointers, Overloading Binary Operators, reading and writing data using files.	K4
CO4	implement function overloading, operator overloading and friend function.	K5
CO5	create a program for virtual function, try block, read and write file.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	1	1	2
CO2	2	2	2	2	2	2	2
CO3	2	2	2	2	1	1	1
CO4	2	2	2	1	2	2	2
CO5	2	2	1	1	2	2	2
Total Contribution of COs to Pos	**10**	**10**	**9**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to Pos	**66**	**66**	**60**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE LAB- 2: PROGRAMMING WITH C++ LAB (U21IT2P2)

LIST OF PRACTICALS

1. Write a program shows the use of class in a C++.
2. Write a C++ program to illustrate the use of inline functions.
3. Write a C++ program to illustrate function overloading.
4. Write a C++ program to illustrate the use of a static data member.
5. Write a C++ program to illustrate the use of object arrays.
6. Write a C++ program to illustrate the use of a friend function.
7. Write a C++ program to demonstrate the passing of arguments to the constructor functions.
8. Write a C++ program to show how the unary minus operator is overloaded.
9. Write a C++ program to demonstrate Overloading Binary Operators.
10. Write a C++ program to illustrate the multilevel inheritance.
11. Write a C++ program to illustrate the arithmetic operations on pointers.
12. Write a C++ program to illustrate the use of two-character handling functions.
13. Write a C++ program to use a single file for both writing and reading the data.
14. Write a C++ program to show how a template function is defined and implemented.
15. Write a C++ program to illustrate try block throwing an exception.

TEXT BOOKS:

1. E. Balagurusamy, Object Oriented Programming with C++, Seventh edition, Tata McGraw Education Hill, Delhi, 2017.
2. A.K.Sharma, Object Oriented Programming with C++, Pearson Education, Delhi, 2014.

REFERENCE BOOKS:

1. Ashok N. Kamthane, Object Oriented Programming with ANSI & Turbo C++, First Edition, Pearson India, 2003.
2. Herbert Schildt, C++,"The Complete Reference", Fourth Edition, McGraw Hill Publishing, 2003.
3. Souravsahay, Object-oriented programming with C++, Second edition, OxfordUniversity press 2006.
4. Robert Lafore, Object Oriented Programming in Turbo C++, Fourth Edition, Galgotia Publications, 2008.
5. D Ravichandran, Programming with C++, Second edition, Tata McGraw Hill,2003

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1. https://www.geeksforgeeks.org/object-oriented-programming-in-cpp/
2. https://www.tenouk.com/cplusplustutorial.html
3. https://www.edx.org/learn/c-plus-plus
4. https://www.bestdotnettraining.com/c-plus-plus-online-training
5. https://www.programiz.com/cpp-programming
6. http://www.cplusplus.com/
7. https://www.tutorialspoint.com/cplusplus/index.htm
8. http://www.learncpp.com/

ADDITIONAL CORE-2 : PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES-II
(U21PS2PE)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part –III	Additional Core – 2	U21PS2PE	Professional English for Physical Sciences- II	60	-	-	4

Contact hours per semester: 60

Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
First	Second	25	75	100

Preamble:

The Course is aimed at developing the language skills of students by offering adequate practice in professional contexts, enhancing the lexical, grammatical and socio-linguistic and communicative competence of first year Physical Sciences students, developing students' knowledge of domain specific registers, developing strategic competence for efficient communication and sharpening students' critical thinking skills.

Course Outcomes (COs):

On successful completion of the course, the learners should be able to

CO No.	Course Outcome	Knowledge Level
CO1	recall the basic rules of grammar, formation and function of words in a more clear and precise manner to achieve communicative goals	K1
CO2	understand the use of language for speaking with confidence in an intelligible and acceptable manner and influence other people's thoughts and opinions using convincing arguments and facts	K2
CO3	apply the digital technologies for information communication and basic problem solving in all aspects of life	K3
CO4	analyse complex problems in a new different way by using imagination to arrive at innovative solutions	K4
CO5	evaluate and use language for team collaboration, presenting information in a clear concise way and writing project reports in an academic tyle	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

COURSE CONTENT

PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES – II (U21PS2PE)

Unit I: Communicative Competence

Calculus can save life - Coding as a creative art - Relativity of time and space - The spirit of chemical sciences.

Unit II: Persuasive Communication

Counting the sequence - Robots come in peace - Electronic fitness trackers - Lavoisier – The Father of Modern Chemistry.

Unit III: Digital Competence

The Fibonacci around us - Software localization and social justice - Digital competence for academic and professional life - Electronic warfare and defense - Phosgene - The Deadly villain of the Bhopal Gas Tragedy.

Unit IV: Creativity And Imagination

Walking on water like a water strider: A Glimpse on surface tension - The invention story of Barcodes - Acid-Base Chemistry with at - Home Volcanoes - Ada and her breakthrough in analytical engine.

Unit V: Workplace Communication & Basics of Academic Writing

Workplace Communication - Academic PowerPoint presentation - Artificial Intelligence - Siri, Cortana, and Alexa Carry the marks of their human makers – Drafting a Circular – Writing minutes of a meeting – Writing Introduction, Paraphrase and Summary – Punctuation - Capitalization.

TEXT BOOKS

1. Isaac Assimov – I, Robot (film also available)
2. Isaac Assimov – The Last Question
3. Antoine De Saint Exupery – The Little Prince
4. Philip K. Dick – Do Androids Dream of Electric Sheep?
5. Stephen Hawking – A Brief History of Time

CHANNELS/VIDEOS

1. Discovery Channel
2. National Geographic Channel
3. Kurzgesagt (videos on YouTube)
4. Joe Scott (videos on YouTube)

ELECTIVE-GENERIC- 2(ALLIED): DIGITAL DESIGN(U21IT2A2)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Elective-Generic-2 (Allied)	U21IT2A2	Digital Design	55	05	-	2

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
First	**Second**	**25**	**75**	**100**

PREAMBLE

This course provides to learn basic building blocks that is the digital circuits has been discussed, to gain knowledge about number system and perform conversion between one base to another base.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	Learn the concepts of number system, logical gates, Circuits, Flip flops and registers.	K1
CO2	Understand the digital logics, various combinational logical circuit, Multiplexers and registers.	K2
CO3	Apply the concepts of number system, code, Karnaugh Map, 2's Complement, **:** Binary Addition and Binary Subtraction , Serial in serial out, serial in parallel out, parallel in serial out and parallel in parallel out	K3
CO4	Analyze the types of logical gates , Karnaugh Simplifications, Sign-Magnitude Numbers	K4
CO5	Evaluate Excess-3 Code, Gray Code and Flipflops.	K5

K1 – Remember; K2 – Understand; K3 – Apply; 4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	1	3	2	3
CO2	2	2	2	1	2	2	1
CO3	2	1	2	2	0	1	1
CO4	1	2	1	2	2	1	1
CO5	1	1	1	2	2	2	2
Total Contribution of COs to Pos	**9**	**8**	**8**	**8**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**53**	**53**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

ELECTIVE GENERIC- 2(ALLIED): DIGITAL DESIGN –(U21IT2A2)

COURSE CONTENT

UNIT I: NUMBER SYSTEMS AND CODES & DIGITAL LOGIC (L–11+T-1 HOURS)

Number System: Binary Number System, Binary to Decimal Conversion, Decimal to Binary Conversion, Octal Numbers, Hexadecimal Numbers. **Codes:** The ASCII Code, the Excess-3 Code, The Gray Code, Complements, Signed Binary Numbers, Binary Storage and Registers. **Digital Logic:** The Basic gates NOT, OR, AND, Universal Logic Gates NOR, NAND.

UNIT II: COMBINATIONAL LOGIC CIRCUITS (L- 11 + T-1 HOURS)

Combinational Logic Circuits : Boolean Laws and Theorems , Sum of Products Method , Truth Table to Karnaugh Map , Pairs, Quads and Octets , Karnaugh Simplifications , Don't Care Conditions, Product of Sums Method, Product of Sums Simplification, HDL Implementation Models. **Data Processing Circuits:** Multiplexers , De-multiplexers , 1-of- 16 Decoders , BCD-to-Decimal Decoders , Seven Segment decoders , Encoders , Exclusive-OR gates.

UNIT III: ARITHMETIC CIRCUITS (L-11 + T-1 HOURS)

Arithmetic Circuits: Binary Addition, Binary Subtraction, Unsigned Binary Numbers, Sign-Magnitude Numbers, 2's Complement Representation, 2's Complement Arithmetic, Arithmetic Building Blocks, The Adder-subtracted, Arithmetic Logic Unit, Binary Multiplication and Division , Arithmetic Circuits Using HDL. **Clocks and Timing Circuits:** Clock Waveforms, TTL Clock, 555 Timer, A stable.

UNIT IV: FLIP-FLOPS, REGISTERS AND COUNTERS (L-11+ T-1 HOURS)

Flip – Flops: RS Flip Flops, Edge Triggered RS Flip Flops, Edge Triggered D Flip Flops, Edge Triggered JK Flip Flops, JK Master Slave Flip Flops. **Registers and Counters:** Registers, Shift Registers, Ripple Counters, Synchronous Counters, Other Counters, HDL for Registers and Counters.

UNIT V: MEMORY AND PROGRAMMABLE LOGIC (L-11 + T-1 HOURS)

Memory and Programmable Logic: Introduction, Random Access Memory, Memory Decoding, Error Detection and Correction, Read Only Memory. **Digital Integrated Circuits:** Switching Circuits**,** 7400 TTL, TTL Parameters, TTL Overview**. Applications:** Multiplexing Displays, Frequency Counters, Time Measurement, Digital Voltmeter.

TEXT BOOKS:

1. Digital Principles and Applications, by Albert Paul Malvino& Donald P.Leach, Seventh Edition, Tata McGraw Hill Education Private Limited, 2011.

REFERENCE BOOKS:

1. Fundamentals of Digital Circuits, A.Anand Kumar, Second Edition, PHI Learning Private Limited, 2012.
2. M.MorrisMano,"Digital Logic and Computer Design", Sixth Edition,Pearson Education, India, 2016.
3. John F.Wakerly,"Digital Design Principles and Practices",FifthEdition,Pearson publications.2017.
4. SonaliSingh,"Digital Logic Design", First Edition,BPB Publications, 2015.
5. Dr.S.Narendra, S.Jadhav,"Digital Logic Design", First Edition, NiraliPrakashan, 2018

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2. http://examradar.com/digital-electronics-digital-logic-short-study-notes/
3. https://www.gatevidyalay.com/digital-electronics/
4. https://www.smartzworld.com/notes/digital-logic-design-and-computer-organization-notes-pdf-dldco-notes-pdf/
5. http://www.ee.surrey.ac.uk/Projects/CAL/digital-logic/gatesfunc/index.html
6. https://faculty.kfupm.edu.sa/coe/ashraf/RichFilesTeaching/COE043_200/Chapter%205.html

ELECTIVE- GENERIC LAB-2(ALLIED): IMAGE EDITING AND DESIGNING LAB (U21IT2AP)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Elective - Generic Lab – 2(Allied)	U21IT2AP	Image Editing and Designing Lab	-	-	30	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
First	**Second**	**40**	**60**	**100**

PREAMBLE

This Laboratory course will enable the students use Adobe Photoshop and CorelDraw to create digital imaging design. Through the manipulation of photo, students generate unique artwork that involve photo editing. Get knowledge of CorelDraw tools and techniques.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand Adobe Photoshop's digital imaging tools and techniques for image editing and transformation, tonal and color correction, and special effects.	K1, K2
CO2	utilize digital imaging tools to make selections work with layers, manipulate brushes and paint, utilize masks and channels, and incorporate vector drawing techniques.	K3
CO3	analyze fundamental layout and design principles to original digital imaging work.	K4
CO4	evaluate geometric methods in CorelDraw	K5
CO5	design logo, Handbook and page frame	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	3
CO2	2	2	2	2	2	1	2
CO3	2	1	2	1	1	2	1
CO4	2	2	1	2	1	2	1
CO5	2	2	1	1	2	2	1
Total Contribution of COs to POs	**10**	**9**	**8**	**8**	**8**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**66**	**60**	**53**	**53**	**53**	**60**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

ELECTIVE- GENERIC LAB-2(ALLIED): IMAGE EDITING AND DESIGNING LAB (U21IT2AP)

LIST OF PRACTICALS

PHOTOSHOP:

1. Design of a brochure for an institution.
2. How to Create a 3D Text Effect Action in Photoshop.
3. Design an Identity card.
4. Design an image using marquee & Lasso tools.
5. Design an image using different selection tools.
6. Implement different types of filters in an image.
7. Merge two Images in Photoshop.
8. Design a Seasonal Greeting card.
9. Convert black & white image into a color image
10. Design a image using clone and pattern stamp tools.
11. Crop an image and perform various transformations in photoshop.
12. Design a web page poster (1004 * 750)/text book cover page.

CORELDRAW:

13. Creating Geometric Fashion Mannequin in CorelDraw.
14. Designing a Logo.
15. Designing a Handbook/College pamphlet.
16. Creating a Party Invitation Card.
17. Design page frame by inserting an image and objects.

TEXT BOOKS:

1. Bitter Kumar,"AdobePhotoshop:The World Best Imaging and Photo Editing Software", Latest Revised Edition ,V&S Publishers,2013.
2. Andrew Faulkner, Conrad Chavez,"Aobe Photoshop CC Classroom",Second Edition,Adobe Press, 2019.
3. Laurie Fuller,"Osborne The Complete ReferencePhotoshop 7",First Edition, Mcgraw Hill Publishing, 2007.
4. Dreamweaver CC in Simple Steps by DT Editorial services,DreamTech Press, 2018.
5. Maivald Jim,"Adobe Dreamweaver CC Classroom,FirstEdition, Pearson Education,2017.

WEB REFERENCES:

1. https://www.lynda.com/Photoshop-tutorials/279-0.html
2. https://helpx.adobe.com/in/photoshop-elements/using/tools.html
3. http://distans.svefi.net/exercises/
4. https://design.tutsplus.com/articles/50-great-photoshop-tutorials-for-clever-beginners--psd-785
5. https://lib.colostate.edu/images/cat/Dreamweaver_cs4.pdf

FOUNDATION COURSE: YOGA AND VALUE EDUCATION (U21FC201)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – IV	Foundation Course	U21FC201	Yoga and Value Education	20	-	10	1

Contact hours per Semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
First	Second	50	-	50

Preamble:

Human beings are facing enormous problems in this 21st century and thus leading a meaningful Life is really challenging. It is both the internal and external factors that prevent one not to have a peaceful living. It is the need of the hour to impart the ways and means of holistic living to the student learners.

Course outcomes

Upon completion of the Course, the learner will be able to

S.No.	Course Outcomes	Knowledge level
CO1	remember the scientific basis of yoga, pranayama and kiriyas, recall the importance of practice of yoga for holistic living, reproduce human and moral values for moral and self development	K1
CO2	understand the scientific basis and importance of yoga, demonstrate human values, morals and responsibilities towards society and measures to eradicate social values	K2
CO3	apply the concepts and tools of yoga for self and moral development to lead a holistic living, identify social evils and execute measures to solve them	K3
CO4	analyse the types and paths of yoga , identify the inherent difficulties in acquiring moral Values examine and develop self soothing mechanism and explore the social evils and measures to overcome them	K4
CO5	evaluate the merits of practicing yogasanas, pranayamas and yogic kiriya, assess the human and moral values needed for self development / holistic living, discuss various social evils and find ways to eradicate them	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

COURSE CONTENT

YOGA AND VALUE EDUCATION (U21FC201)

Unit: 1- SCIENCE OF YOGA **(T:03 P: 10 Hours)**

Science of Yoga: Meaning - Pancha kosha - **Types of yoga**: Karma yoga – Bakthi Yoga - Jnana yoga - Raja yoga - **Paths of Yoga**: Yama - Niyama - Asana - Pranayama - Prathyahara - Dharana - Dhyana - Samadhi.

(Practice: Suksma Vyama – Surya Namaskar – Basic set of Asanas, Pranayama & yogic kriyas)

Unit: 2 - VALUES FOR LIFE **(T: 04 Hours)**

Human Values: Definition - Nature – Types - Process and Significance - **Social Consciousness and responsibility - Holistic living**

Unit: 3 - MORAL DEVELOPMENT **(T: 04 Hours)**

Morality: Moral Development - Inherent difficulties in Acquiring moral Values - Truth – Commitment - Honesty and Integrity - Forgiveness and Love - **Empathy and ability to sacrifice**

Unit: 4 -SELF DEVELOPMENT **(T: 04 Hours)**

Self Development: Meaning - Growth mindset - Self-soothing mechanism - Developing resilience – **Body Language** - Good Manners and Etiquette

Unit: 5 - SOCIAL EVILS **(T: 05 Hours)**

Social Evils: Meaning - Domestic violence - Corruption - Terrorism - **Measures to eradicate social evils.**

REFERENCES

1. Study Material: The work book compiled by the TEAM of GVN College
2. Yoga: (Asanas, Pranayama, Mudra, Kriya) Vivekananda Kendra (1977), Vivekananda Prakasan Trust, Chennai.
3. Value Based Education, N. Arumugam, S.Mohana and Lr. Palkani, Saras Publication

WEB REFERENCES :

1. https://www.mea.gov.in/in-focus-article.html/ 25096/ Yoga + Its + Origin + History + and + Development
2. https://www.incredibleindia.org/content/incredibleindia/en/blogs/india-the-land-of-yoga.html
3. https://www.artofliving.org/in-en/yoga/yoga-for-beginners/science-behind-yoga
4. https://www.livescience.com/35129-yoga-increases-brain-function-bone-density.html
5. https://kripalu.org/presenters-programs/science-yoga

Semester-III

CORE 3: PROGRAMMING WITH JAVA - (U21IT303)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core – 3	U21IT303	Programming with Java	55	05	-	4

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**25**	**75**	**100**

PREAMBLE

This course involves OOP concepts, java basics, inheritance, polymorphism, interfaces, inner classes, packages, Exception handling, multithreading, collection framework, files, JDBC and GUI components.

COURSE OUTCOMES (COS)

On successful completion of the course, the students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand Data types, Variables and Arrays, Operators, Inheritance Basics, Thread and Window Fundamentals	K1, K2
CO2	apply the concepts of control statements, classes, objects, exception, packages and interfaces and swings.	K3
CO3	analyze arrays using simple programs, types of operators, Packages and AWT classes.	K4
CO4	evaluate the concepts of Type Conversion, Iteration Statements, Jump Statements and Casting, Exception types and AWT Controls.	K5
CO5	design and develop java program using arrays, inheritance, Multi-Threading and Working with Frame	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Cos \ Pos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	0	1	2	2
CO2	2	2	2	2	2	1	2
CO3	2	2	2	2	1	1	1
CO4	2	2	1	2	3	2	1
CO5	1	1	1	2	1	2	2
Total Contribution of COs to Pos	**9**	**9**	**8**	**8**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to Pos	**60**	**60**	**53**	**53**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE 3: PROGRAMMING WITH JAVA – (U21IT303)

COURSE CONTENT

UNIT I: THE HISTORY AND EVOLUTION OF JAVA (L–11 +T-1Hours)

The History and Evolution of Java : The Creation of Java, Java's Magic: The Bytecode, Java buzzwords, The Evolution of Java. **An Overview of Java:** Object Oriented Programming, A First Simple Program, Two Control Statements, Using Blocks of Code, Lexical Issues, The Java Keyword. **Data types, Variables and Arrays:** The Primitive Types, Variables, Type Conversion and Casting, Arrays.

UNIT II: OPERATORS (L–11 +T -1Hours)

Operators: Arithmetic Operators, the Bitwise Operators, Relational Operators, Bitwise Logical Operators. **Control Statements:** Java's Selection Statements, Iteration Statements, and Jump Statements. **Introducing Classes:** Class Fundamentals, Declaring Objects, Introducing Methods, Constructors, The this keyword,

UNIT III: INHERITANCE (L-11 + T-1 HOURS)

Inheritance: Inheritance Basics, Using Super, Method Overriding, Using final with Inheritance. **Packages and Interfaces:** Packages, Importing Packages, Interfaces, Use Static Methods in an Interface. **Exception Handling:** Exception types, Usage of Try and Catch, Throw, Throws, Finally, Java's Built-in Exceptions, Creating your own Exception classes.

UNIT IV: MULTI THREADING (L-11 + T-1 HOURS)

Multi-Threading: The Java Thread Model, Creating a Thread, Using isAlive( ) and join, Thread Priorities, Synchronization, **Event Handling:** Two Event Handling Mechanisms, The Delegation Event Model, Event Classes, The KeyEvent Class.

UNIT V: INTRODUCING THE AWT (L-11 + T-1 HOURS)

Introducing the Awt: AWT Classes, Window Fundamentals, Working with Frame Windows, Introducing Graphics, Working with Color. **Introducing Swing:** The Origins of Swing, Two key Swing Features, Components and Containers, The Swing Packages, A Simple Swing Application, Painting in Swing.

TEXT BOOKS:

1. Herbertschildt, Java Thecomplete reference,Eleventh Edition, 2020, TataMcgrawHill, NewDelhi

REFERENCE BOOKS:

1. Herbertschildt,Thecomplete reference,7thedition,2010, TataMcgrawHill,NewDelhi.
2. T. Budd, An Introduction to Object Oriented Programming, 3rd edition, 2009 Pearson Education, India.
3. J.Nino,F.A.Hosch,AnIntroductiontoprogrammingandOOdesignusingJava,2002,John Wiley & sons, New Jersey.
4. Y. Daniel Liang, Introduction to Java programming, 7th edition, 2010, Pearson education, India.

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2. https://www.geeksforgeeks.org/java-programming-basics/
3. https://beginnersbook.com/java-tutorial-for-beginners-with-examples/
4. https://www.ncertbooks.guru/advanced-java-programming/
5. https://www.tutorialspoint.com/java/java_tutorial.pdf
6. https://www.slideshare.net/KetanRajpal/advanced-java-programming-notes
7. https://enos.itcollege.ee/~jpoial/allalaadimised/reading/Advanced-java.pdf

CORE LAB- 3: PROGRAMMING WITH JAVA LAB (U21IT3P3)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core Lab – 3	U21IT3P3	Programming with Java Lab	-	-	75	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**40**	**60**	**100**

PREAMBLE

This laboratory course will enable the students to identify, formulate all techniques of software development in the Java Programming Language and demonstrate these techniques by solving variety of problems spanning the breadth of the language.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the concepts of Switch, if else, and Type casting, method overriding, swing, AWT	K1, K2
CO2	applying operators and class with methods and Inheritance	K3
CO3	analyse the method overriding, derived and basic class working environments, Error Handling and Loops	K4
CO4	evaluate java program with appropriate concepts like multilevel inheritance, graphical image display environment	K5
CO5	write a Java program using fundamental and advanced java functions, Events.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	3	2	2	0	1	2
CO2	2	2	1	2	3	2	2
CO3	2	1	2	2	1	1	1
CO4	2	1	2	1	2	2	2
CO5	1	2	1	1	2	2	2
Total Contribution of COs to Pos	**9**	**9**	**8**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to Pos	**60**	**60**	**53**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE LAB- 3: PROGRAMMING WITH JAVA LAB (U21IT3P3)

LIST OF PRACTICALS

1. Write a Java program to find the largest of three numbers using if…else…if.
2. Write a Java program to check Vowel or Consonant using Switch Case.
3. Write a Java Program to Implement Type Casting of the Data type.
4. Write a Java Program to perform basic arithmetic operations.
5. Write a Java Program to swap two numbers using Bitwise XOR Operator.
6. Write a Java Program to find largest of three numbers using Ternary Operator.
7. Write a Java program to display employee details using class and method.
8. Write a Java program to perform method overriding.
9. Write a Java program using final with inheritance.
10. Write a Java program using package to find the number is Armstrong number.
11. Write a Java program to demonstrate working of try, catch and finally.
12. Write a Java Program to display Multiplication Tables using Multithreading.
13. Write a Java program to demonstrate the KeyEvent Class.
14. Write a Java Program to make a Simple Calculator Using AWT.
15. Write a Java program to create login page using Swing.

TEXT BOOKS:

1. Herbertschildt,Java Thecomplete reference,Eleventh Edition,2020,TataMcgrawHill,NewDelhi.

REFERENCE BOOKS:

1. Herbertschildt,Thecomplete reference,7th edition,2010, TataMcgrawHill,NewDelhi.
2. T. Budd, An Introduction to Object Oriented Programming, 3rd edition , 2009 Pearson Education, India.
3. J.Nino,F.A.Hosch,AnIntroductiontoprogrammingandOOdesignusingJava,2002,John Wiley & sons, New Jersey.
4. Y. Daniel Liang, Introduction to Java programming, 7th edition, 2010, Pearson education, India.

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1. https://www.javatpoint.com/java-tutorial
2. https://www.geeksforgeeks.org/java-programming-basics/
3. https://beginnersbook.com/java-tutorial-for-beginners-with-examples/
4. https://www.ncertbooks.guru/advanced-java-programming/
5. https://www.tutorialspoint.com/java/java_tutorial.pdf
6. https://www.slideshare.net/KetanRajpal/advanced-java-programming-notes
7. https://enos.itcollege.ee/~jpoial/allalaadimised/reading/Advanced-java.pdf

CORE ELECTIVE – I GROUP

DATA STRUCTURE(U21IT3E1A)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - I	U21IT3E1A	Data Structure	70	05	-	4

Contact hours per Semester: 75
Contact hours per Week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**25**	**75**	**100**

PREAMBLE

This course helps the students to learn and understand the concepts of basic data structures such as stack, Queues and Linked list. It is used to know the network structures through trees and graph. To make the students to understand the basic algorithms for sorting.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcomes	Knowledge Level (RBT)
C01	learning and understanding the basic concepts of data structure, arrays, stacks, queues, trees, sorting	**K1,K2**
C02	apply the concepts of Stacks, Queues and polynomial, arrays, trees, Graphs, types of sorting	**K3**
C03	analyze the binary tree and binary search tree, Laws and Hashing	**K4**
C04	evaluate the trees, post-order and pre-order and Kruskal's Algorithm, Working of sorting algorithms on data, Shortest Paths and Transitive.	**K5**
C05	develop a program using list, matrix, linked list, stack and queue concepts	**K6**

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6-Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	1	1	2	2
CO2	2	2	2	1	2	2	2
CO3	3	2	2	2	2	1	1
CO4	1	2	1	2	2	2	2
CO5	1	1	2	2	2	1	1
Total Contribution of COs to POs	**10**	**9**	**9**	**8**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**66**	**60**	**60**	**53**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE-4: DATA STRUCTURE - (U21IT3E1A)

COURSE CONTENT

UNIT I: BASIC CONCEPTS (L-14+ T-1 HOURS)

Basic Concepts: Algorithm specification, Data Abstraction, Performance Analysis. **Arrays:** Arrays and Structures Abstract data type, Polynomials, Sparse Matrices, Representation of Multidimensional Arrays.

UNIT II: STACKS AND QUEUES (L-14+ T-1 HOURS)

Stacks and Queues: Stacks, Queues, Evaluation of Expressions. **Linked Lists:** Singly Linked Lists and Chains, Linked Stacks and Queues. **Polynomials:** Polynomial Representation, Adding Polynomials. **Sparse Matrices:** Sparse Matrix Representation, Doubly Linked Lists.

UNIT III: TREES (L-14+ T-1 HOURS)

Trees: Introduction, Binary Trees. **Binary Tree Traversals:** In-order Traversal, Pre-order Traversal, Post-order Traversal. Heaps. **Binary Search Trees Forests**: Transforming a Forest into a Binary Tree.

UNIT IV: GRAPHS (L-14+ T-1 HOURS)

Graphs: The Graph Abstract Data Type, Elementary Graph Operations. **Minimum Cost Spanning Trees:** Kruskal's Algorithm, Prim's Algorithm. **Shortest Paths and Transitive Closure:** Single Source/ All Destination-Nonnegative Edge Costs, All Pairs Shortest Paths.

UNIT V: SORTING (L-14+ T-1 HOURS)

Sorting: Motivation, Insertion Sort, Quick Sort, Merge Sort: Recursive Merge Sort, Heap Sort. **External Sorting:** Introduction, k-way merging. **Hashing:** Static Hashing, Hash Tables.

TEXT BOOKS:

1. Ellis Horowitz, SartajSahni, Susan AndersonFreed,"Fundamentals of Data Structures in C", Second Edition, 1993, Universities Press (India) Private Limited.

REFERENCE BOOKS:

1. ReemaThareja, "Data Structures Using C" , Second Edition, 2014, Oxford University Press.
2. M.A.Weiss, "Data structures and Algorithm Analysis in C" , 2nd edition, 2002, Pearson

WEB REFERENCES:

1. https://www.tutorialspoint.com › data_structures_algorithms
2. https://www.studytonight.com/data-structures/introduction-to-data-structures
3. https://www.geeksforgeeks.org › data-structures
4. https://www.wisdomjobs.com › e-university › data-struc.

CORE ELECTIVE – I GROUP

MULTIMEDIA TECHNOLOGY-(U21IT3E1B)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - I	U21IT3E1B	Multimedia Technology	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**25**	**75**	**100**

PREAMBLE

This course provides to know about Characteristics of multimedia and Analog, Digital Representations of Multimedia. Understand the various multimedia properties like Image, Audio and Video. This course also Apply the various Application of Image, Audio, Video and Animation software.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn the Characteristics of Multimedia and Analog, Digital Representations.	K1
CO2	understand the Various parts of Multimedia and its Properties.	K2
CO3	apply the Image Processing Software and Audio & video Application in Multimedia.	K3
CO4	analyse the various Multimedia Properties and image, Audio, video and animation applications.	K4
CO5	evaluate the image, Audio, video and Animation Applications in Multimedia.	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	1
CO2	2	2	2	2	2	2	2
CO3	2	2	1	1	2	1	2
CO4	1	1	2	2	1	2	1
CO5	2	2	1	1	2	1	2
Total Contribution of COs to Pos	**9**	**9**	**8**	**8**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**53**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

MULTIMEDIA TECHNOLOGY-(U21IT3E1B)

COURSE CONTENT

UNIT – I: INTRODUCTION, DIGITAL REPRESENTATION, TEXT

(L-14 HOURS+T-1 HOUR)

Introduction: Multimedia Presentation and Production, Characteristics of Multimedia. Presentation, Multiple Media, Utilities of Multi-sensory perception, Hardware and Software, Requirements. **Digital Representation:** Analog Representation, Waves, Digital. Representation, Need for Digital Representation, Analog to Digital Conversion, Digital to Analog Conversion**. Text:** Types of Text, Unicode Standard, Font, Insertion of Text, Text Compression, File Formats.

UNIT – II: IMAGE (L-14 HOURS+T-1 HOUR)

Image: Image Types , Seeing Color, Color Models , Basic Steps for Image Processing , Scanner , Digital Camera , Interface Standards , Specification of Digital Images , CMS , Device Independent Color Models , Image Processing Software , File Formats , Image Output on Monitor and Printer.

UNIT – III: AUDIO (L-14 HOURS+T-1 HOUR)

Audio : Introduction, Acoustics , Nature of Sound Waves , Fundamental Characteristics of Sound , Microphone , Amplifier , Loudspeaker , Audio Mixer , Digital Audio , Synthesizers , MIDI , Basics of Staff Notation , Sound Card , Audio Transmission , Audio File Formats and CODECs , Audio Recording Systems , Audio and Multimedia , Voice Recognition and Response , Audio Processing Software.

UNIT – IV: VIDEO (L-14 HOURS+T-1 HOUR)

Video : Analog Video Camera , Transmission of Video Signals , Video Signal Formats , Television Broadcasting Standards ,Digital Video , Digital Video Standards , PC Video , Video Recording Formats and Systems , Video File Formats and CODECs , Video Editing , Video Editing Software.

UNIT – V: ANIMATION (L-14 HOURS+T-1 HOUR)

Animation: Types of Animation, Computer Assisted Animation, Creating Movement, Principles of Animation , Some Techniques of Animation, Animation on the Web, Special Effects, Rendering Algorithms. **Compression:** MPEG – 1 Audio, MPEG – 1 Video, MPEG – 2 Audio, MPEG – 2 Video.

TEXT BOOKS :

1. Ranjan Parekh,“Principles of Multimedia” , First Edition, 2006, Tata MGraw Hill Education Private Limited.

REFERENCE BOOKS :

1. Tay Vaughan “Multimedia : Making it Work”, 7th Edition, 2007,Tata MGraw Hill Education Private Limited.

2.Vikas Gupta “Comdex Multimedia And Web Design”,2007 Dream Tech Press.

WEB REFERENCES:

1. https://prezi.com/t_fe2nsmf8gq/multimedia-production-and-presentation/
2. https://www.tutorialspoint.com/multimedia/multimedia_images_graphics.htm
3. https://en.wikipedia.org/wiki/Video
4. https://en.wikipedia.org/wiki/Animation

CORE ELECTIVE – I GROUP

COMPUTER ARCHITECTURE- (U21IT3E1C)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - I	U21IT3E1C	Computer Architecture	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**25**	**75**	**100**

PREAMBLE

This course provides to learn the basic computer organization concepts and know the Central Processing Unit and Input Output Organization in Computer. Students will able to solve various algorithm in Arithmetic and RISC, CISC Characteristics.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the basic computer organization concepts, cpu and Input Output Organization	K1,K2
CO2	implement the Algorithm for Addition, Subtraction, Multiplication, Division.	K3
CO3	analyse the function of CPU, Input Output Organization and Memory Organization	K4
CO4	evaluate the various algorithm in Arithmetic and RISC, CISC Characteristics	K5
CO5	Create an application using understanding of concepts	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	1	1	2	2
CO2	2	2	2	2	2	2	2
CO3	1	1	2	2	1	1	2
CO4	1	2	2	2	2	2	1
CO5	2	1	1	1	2	1	1
Total Contribution of COs to Pos	**8**	**8**	**9**	**8**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**53**	**60**	**53**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

COMPUTER ARCHITECTURE- (U21IT3E1C)
COURSE CONTENT

UNIT – I: BASIC COMPUTER ORGANISATION AND DESIGN (L-14 HOURS+T-1 HOUR)

Basic Computer Organisation and Design: Instruction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory, Reference Instruction, Input-Output and Interrupt, Machine Language, Assembly Language, Control Memory, Address Sequencing.

UNIT – II: CENTRAL PROCESSING UNIT (L-14 HOURS+T-1 HOUR)

Central Processing Unit: Introduction , General Register Organization, Stack Organization, Instruction Formats , Addressing Modes , Data transfer and manipulation , Program Control. **Pipeline and Vector Processing:** Parallel Processing, Pipelining, Instruction Pipeline.

UNIT–III: COMPUTER ARITHMETIC (L-14 HOURS+T-1 HOUR)

Computer Arithmetic: Introduction, Addition and Subtraction, Addition and Subtraction with Signed-Magnitude Data, Hardware Implementation, Hardware Algorithm, Multiplication Algorithms, Hardware Implementation for Signed-Magnitude Data Hardware Algorithm, Booth Multiplication Algorithm, Division Algorithms, Hardware Implementation, Divide Overflow , Hardware Algorithm , Floating-Point Arithmetic Operations.

UNIT-IV: INPUT-OUTPUT ORGANIZATION (L-14 HOURS+T-1 HOUR)

Input-Output Organization: Peripheral Devices, Input – Output Interface, Asynchronous data transfer, Modes of transfer, Priority Interrupt, Direct Memory Access (DMA). **Memory Organisation:** Memory Hierarchy, Main memory, Auxiliary memory, Associative memory, Cache memory, Virtual memory.

UNIT–V: ADVANCED PROCESSING (L-14 HOURS+T-1 HOUR)

Advanced Processing: Reduced Instruction Set Computer (RISC), CISC Characteristics, RISC Characteristics, Berkeley RISC I, **Multi Processors:** Characteristics of Multiprocessors Interconnections Structures , Interprocessor Communication and Synchronization.

TEXT BOOKS:

1. Morris Mano, “Computer system Architecture”, Third Edition,2007 Pearson Education India Private Limited.

REFERENCE BOOKS:

1. P.V.S. Rao “Computer System Architecture”, 2008, PHILearning.
2. Nirmala Sharma,”Computer Architecture”, First Edition,2009,University Science Press
3. NicholosCarter,”Computer Architecture” ,2006, Tata MCgraw Hill Publication.

WEB REFERENCES:

1. https://vardhaman.org/wp-content/uploads/2018/03/COA%20Unit-II%20part-1.pdf
2. https://www.geeksforgeeks.org/
3. https://bcastudyguide.wordpress.com/unit-4-input-output-organization/

EMPLOYABILITY ENHANCEMENT: I
INTRODUCTION TO INFORMATION TECHNOLOGY

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - IV	Employability Enhancement:I	U21IT3EEA	Introduction to Information Technology	30	-	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**50**	**--**	**50**

PREAMBLE

This subject helps students to know the recent technologies and development of computers. Students acquire knowledge on the internet and their usage.

COURSE OUTCOMES (COS)

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the Role of Information Technology, Data representation, Computer Organization, types of input devices, computer memory, E-Commerce, internet	K1,K2
CO2	apply the Data representation, Memory Hierarchy, Emerging Trends in Information Technology, Media	K3
CO3	analyze what are the trends, input and output devices, internet tools and techniques.	K4
CO4	evaluate how to use internet, Media ,Memory, Tools	K5
CO5	create the application oriented technologies in IT	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	0	2	2	0	2	2
CO2	2	2	2	2	0	2	1
CO3	1	2	2	0	0	2	2
CO4	2	2	1	2	0	0	2
CO5	2	2	1	3	0	2	1
Total Contribution of COs to POs	**9**	**8**	**8**	**9**	**0**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**60**	**53**	**0**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

INTRODUCTION TO INFORMATION TECHNOLOGY - (U21IT3EEA)

COURSE CONTENT

UNIT I: INFORMATION TECHNOLOGY BASICS (L-6 Hours)

Information Technology Basics: Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. Computer Organization and Architecture: Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes.

UNIT II: COMPUTER MEMORY AND STORAGE (L-6 Hours)

Computer Memory and Storage: Introduction, Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks.

UNIT III: INPUT OUTPUT MEDIA (L-6 Hours)

Input Output Media: Introduction, types of input devices, types of output devices. Multimedia Essentials: Introduction, Multimedia: Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality.

UNIT IV: THE INTERNET (L-6 Hours)

The Internet: Introduction Evolution of Internet, Basic Internet Terms, Getting Connect to Internet, Internet Applications, Data over Internet. **Internet Tools:** Introduction, Web Browser, Browsing Internet using Internet Explorer, E – Mail, Search Engines, Instant Messaging.

.UNIT V: EMERGING TRENDS IN IT (L-6 Hours)

Emerging Trends in IT: Introduction, E-Commerce, Electronic Data Interchange, Mobile Communication, Bluetooth, Global Positioning System , Infrared Communication , Smart Card , Imminent Technologies.

TEXT BOOKS :

1. D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter Introduction to Computers and Information Technology, Shekina Publications.

REFERENCE BOOKS :

1. ITL Education Solutions Limited “Introduction to Information Technology”,Second Edition, 2012, Pearson Education.
2. Alexis Leon & Mathews Leon “Fundamentals of Information Technology” Second Edition, 2009,Vikas Publication – New Delhi.

WEB REFERENCES:

1. https://www.researchgate.net/publication/297403818_INFORMATION_COMMUNICATION_TECHNOLOGY_ICT_Concepts_and_Application
2. http://www.itdesk.info/Basic%20Concepts%20of%20Information%20Technology%20notes.pdf
3. http://e-school.kmutt.ac.th/elibrary/Upload/EBook/DSIL_Lib_E1312881659.pdf
4. http://teamslive.com/DOWNLOADS/Bharathiar%20University%20Study%20Materials/UG/B.Com%20Computer%20Application/First%20Year/Introduction%20to%20Information%20Technology.pdf
5. https://www.dphu.org/uploads/attachements/books/books_3326_0.pdf

EMPLOYABILITY ENHANCEMENT: I
WEB DESIGNING (U21IT3EEB)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - IV	Employability Enhancement:I	U21IT3EEB	Web Designing	30	-	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**50**	**--**	**50**

PREAMBLE

This subject helps students to understand the principles of creating web page, including a depth consideration pf information Architecture. Students will develop and understanding of information design and usability as it applies to interactive media projects.

COURSE OUTCOMES (COS)

CO's No	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand MySQL installation, PHP, XML, Frame Works,	K1,K2
CO2	applying and analyse the variables, Array, String, cookies, Working with xml	K3
CO3	analysing front-end Application with desirable techniques.	K4
CO4	evaluate working structure of an application	K5
CO5	create the Database connection with PHP, Project in PHP & SQL	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	2	2	1	2	2
CO2	2	2	2	0	2	2	1
CO3	2	2	2	1	1	2	2
CO4	1	2	2	1	2	0	2
CO5	1	2	1	1	2	2	1
Total Contribution of COs to POs	**8**	**9**	**9**	**8**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**60**	**53**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

EMPLOYABILITY ENHANCEMENT: I WEB DESIGNING (U21IT3EEB)

COURSE CONTENT

UNIT I: INSTALLATION AND CONFIGURATION (L-6 Hours)

Installation and Configuration: Getting up and running, Installation Quick Start Guide, Installing and configuring MySQL Installing and configuring Apache, Installing and configuring PHP.

UNIT II: PHP LANGUAGE STRUCTURE (L-6 Hours)

PHP Language Structure: The Building blocks of PHP, Flow Control Functions in PHP, Working with Functions Working with Arrays, Working with Objects, Working with Strings, Dates and Time, Working with Forms, Working with Cookies and User Sessions, Working with Files and Directories Working with Images

UNIT III: PHP AND MYSQL INTEGRATION (L-6 Hours)

PHP and MYSQL Integration: Understanding the Database Design, Process Learning Basic SQL Commands Using Transactions and Stored Procedures in MySQL, Interacting with MySQL Using PHP.

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UNIT IV: BASIC PROJECTS (L-6 Hours)

Basic Projects : Managing a Simple Mailing List- Creating an Online Address Book, Creating a Simple Discussion Forum, Creating an Online Storefront and shopping Cart Mechanism, Creating a Simple Calendar, Restricting Access to Your Applications, Logging and Monitoring Web Server Activity, Application Localization, Working with XML.

UNIT V: ADMINISTRATION AND FINE-TUNING (L-6 Hours)

Administration and Fine-Tuning: Apache Performance Tuning and Virtual Hosting, Setting Up a Secure Web Server, Optimizing and Tuning MySQL, Performing Software Upgrades, Using Application Frameworks.

TEXT BOOKS:

1. Julie C.Meloni,"Sams Teach Yourself PHP, MySQL and Apache All in One", 5th Edition, 2012, Sams Publishing.
2. Dynamic Web Publishing Unleashed, Second Edition, 1997, Shelley Powers, Techmedia.

REFERENCE BOOKS:

1. Steve Suehring, Tim Converse and Joyce Park," PHP 6 and MySQL 6 Bible", Wiley India reprint, 2009.
2. Robert Sheldon, Geoff Moes," Beginning MySQL", Wrox, 2005, Wiley Publication.
3. BEN FORTA," MySQL Crash course" 2006, Sams Publishing.

WEB REFERENCES:

1. https://www.w3schools.com/php/php_mysql_intro.asp
2. https://www.tutorialspoint.com/php/php_and_mysql.htm
3. https://www.php.net/manual/en/book.mysql.php
4. https://www.geeksforgeeks.org/php-mysql-database-introduction/
5. https://www.tutorialrepublic.com/php-tutorial/php-mysql-introduction.php

ABILITY ENHANCEMENT – II MEDIA AND INFORMATION LITERACY COMMUNICATION (U21AE302)

Department of English (Syllabus for those who joined in 2020-2021 and after)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - IV	Ability Enhancement - 2	U21AE302	Media and Information Literacy Communication	30	-	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Third**	**--**	**50**	**50**

Preamble:

Media literacy creates awareness regarding mediated environment or consumption of mass communication. It enhances the ability to responsibly comprehend, access, and use mass communication in personal and professional lives.

Course Outcomes (CO)

By the end of the course the students will be able to

No	Course Outcomes	Knowledge Level (RBT)
C01	acquire the knowledge about media	K1
C02	understand the importance of media literacy	K2
C03	apply media and library skills in personal and professional life	K3
C04	analyse the values of constitution through media	K4
C05	evaluate and discuss the merits and demerits of media	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

MEDIA AND INFORMATION LITERACY COMMUNICATION (U21AE302)

COURSE CONTENT

Unit 1- Understanding Media and Information Literacy

Introduction: New media - Meaning and characteristics; New Media-Definition, concept and scope; Interactivity and New Media; Core values of the Constitution - Freedom of Expression - Article 19 (1) (a), Article 19(2) ; ICT and media – definition and role; Effect of computer mediated communication; Impact of ICT on mass media; Digitization;

Unit II- Media Literacy

Media Literacy Skills - Nature, Scope and Importance, Interpreting media messages: Semiotics, Ideology , Media as Text , Commercial messages, Sub fields: Digital Literacy and Visual literacy, Fundamentals of Media Literacy, Mediated and Non Mediated Communication.

Unit III- Information Literacy and Library Skills

Information Literacy Skills – Definition, Special aspects of Information Literacy; Information Literacy and Library Skills - Similarities and dissimilarities.

Unit IV - Visual Literacy

Visual Communication – Definition, Importance of Visual Literacy, Nature and Scope of Visual Communication ,The role of Visual communication in today's content marketing and The Power and Influence of Visuals.

Unit V - Digital Literacy

Digital Literacy – Definition, Types of Digital Literacy, Fundamentals of Digital Literacy, The difference between Computer Literacy and Digital Literacy, Benefits of Digital Literacy; 24/7 news broadcast: Features, Audience effectiveness, advertisements and Dumbing down of News, Convergence and Multimedia.

REFERENCES:

1. Baran, Stanley J. "Mass Communication, Culture and Media Literacy." *Introduction to Mass Communication: Media Literacy and Culture*, McGraw-Hill Education, 2015, pp. 4–26.
2. Pavlik, John V., and Shawn McIntosh. "Media Literacy in the Digital Age." *Converging Media: A New Introduction to Mass Communication*, Oxford University Press, 2018, pp. 44-68.
3. Rosenwald, Michael. "Making Media Literacy Great Again." *Columbia Journalism Review*, vol. 56, no. 2, 2017, pp. 94–99.
4. Potter, W.J. Theory of Media Literacy: A cognitive approach (Sage, 2004)
5. Pike, D.M. Media Literacy: Seeking Honesty, Independence, and Productivity in Today's Mass Messages (IDEA, 2013)
6. Lester, E; *Visual Communications: Images with Messages*, (Thomson Learning, 2000).

Semester-IV

CORE- 4: RELATIONAL DATABASE MANAGEMENT SYSTEM (U21IT404)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core – 4	U21IT404	Relational Database Management System	55	05	-	4

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
Second	Fourth	25	75	100

PREAMBLE

The area of relational database management system is crowded with a vast number of quality products. This paper aims to provide the students a strong foundation in database technology and to learn the fundamentals of data models to make a study of SQL and relational database design.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand of data base system, relational algebra, basic SQL operations and pl/sql operations.	K1, K2
CO2	apply the concept of E-R Model, Normalization, Data Functions and Functions & Packages	K3
CO3	analyze the Relational Algebra, joins and Commands.	K4
CO4	evaluate Mapping Constraints, E-R Diagram, Simple tests against a list of values and Triggers.	K5
CO5	create the Clusters, Sequences, Procedures and Packages.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	1	2	0	2	2
CO2	2	3	2	1	3	2	2
CO3	2	1	2	1	2	2	2
CO4	2	1	2	2	2	0	1
CO5	2	1	1	2	2	2	1
Total Contribution of COs to POs	10	8	8	8	9	8	8
Weighted Percentage of COs Contribution to POs	66	53	53	53	60	53	53

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE- 4: RELATIONAL DATABASE MANAGEMENT SYSTEM – (U21IT404)

COURSE CONTENT

UNIT-I: OVERVIEW OF DATABASE SYSTEMS (L-11 + T-1 HOURS)

Purpose of Database Systems- Data Models, Database Languages, Transaction Management, Storage Management, DBA – Database Users, System Structure. **E-R Model:** Entities and Entity sets, Relationship Sets, Mapping Constraints, E-R Diagram.

UNIT-II: STRUCTURE OF RELATIONAL DATABASE (L-11+T-1 HOURS)

Relational Algebra: Tuple Relational Calculus, Domain Relational Calculus, Integrity Constraints .**Normalization:**Boyce-Codd Normal Form, Third Normal Form, Fourth Normal Form ,Domain – Key Normal Form.

UNIT-III: BASIC SQL OPERATIONS (L-11+T-1 HOURS)

Basic Sql Operations : Creating a Table , Insert, Rollback,Commit,Auto Commit, Delete, Update,Select,From,Where and Order by, **Single value tests**: Single value tests, LIKE, Simple tests against a list of values, Combining Logic, Dropping tables, Dropping a Column, Creating a table from a table, **Data Functions:**Conversation functions,Translate,Decode, Creating a view – Advanced Sub queries – Outer Joins – Natural and Inner Joins – Union, Intersect & Minus – Synonyms – Indexes – Tables space – Clusters – Sequences.

UNIT-IV: BASICS OF OBJECT (L-11 + T-1 HOURS)

Relational Databases : Objects – Abstract Data Types – Nested tables – Varying arrays – Large Objects – References Object Views – Naming conventions for objects – structure of an object – Users, **Roles and Privilege** : Creating a user – Password management – Three Standard roles – Format for grant command – Revoking privileges – What users can Grant : Moving to another user – Create Synonym – Create a role – Granting privileges to a role – Granting a role to another role – Adding Password to a role – Removing password from a role – Enabling & Disabling Roles – Revoking Privilege from a role – Drop role.

UNIT-V: AN INTRODUCTION TO PL/SQL (L-11 + T-1 HOURS)

PL/SQL Overview – Declaration section – Executable commands section – Exception handling Section – **Triggers:** Syntax – Types of Triggers: Row – Level – Statement – Level – before & after – Instead of Schema – Database – Level Triggers – Enabling & Disabling Triggers – Replacing & Dropping Triggers – Procedures, **Functions & Packages:** Syntax – Compile – Replace – Drop Procedure, Functions & Packages – Cursor Management.

TEXT BOOKS:

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan "Database System Concepts" McGraw –Hill Education, 2010.
2. Kevin Loney, George Koch And the Experts at TUSC, "ORACLE 9i The Complete Reference", Tata McGraw – Hill Publishing Company Ltd., New Delhi, 2002.
3. Database Systems RamezElmasri, Shankant B. Navathe – 6th Edition – Pearson, 2011.

REFERENCE BOOKS:

1. Rajesh Narang – "Database Management Systems", PHI Learning Pvt. Ltd., 2006.
2. Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw – Hill Education, 2002.
3. Michael Abbay, Mike Corey, Ian Abramson, "ORACLE 9i A Beginner's Guide", Tata McGraw – Hill Publishing Company Ltd., New Delhi, 2002.
4. The Database Application Book using the MYSQL Database Gehani – Universities Press.

WEB REFERENCES:

1. https://www.javatpoint.com/dbms-er-model-concept
2. https://beginnersbook.com/2015/04/mapping-constraints-in-dbms/
3. https://www.tutorialspoint.com/plsql/plsql_cursors.html
4. https://www.javatpoint.com/oracle-inner-join
5. https://www.tutorialspoint.com/plsql/plsql_packages.html

CORE- 5: OPERATING SYSTEM (U21IT405)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part-III	Core – 5	U21IT405	Operating System	55	05	-	4

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**25**	**75**	**100**

PREAMBLE

This course helps the students to know the basic of Operating system. And understand the concepts of Process management, Memory Management, Inter-Process Communication and File system in detail.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the fundamentals of Operating System, Process management, inter-process communication, and memory and information management.	K1,K2
CO2	apply booting, process scheduling, deadlock strategies, ingle Contiguous memory management, fixed partition memory management and case study.	K3
CO3	analyze the Operating System Structure, Suspend/resume operation, Classical IPC problems and virtual memory management system.	K4
CO4	evaluate deadlock prerequisites and File System in Unix and Linux.	K5
CO5	create an open source based application.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	2	2	0	2	2
CO2	2	2	1	0	3	2	2
CO3	2	2	2	2	2	2	2
CO4	1	2	2	2	2	1	1
CO5	1	1	2	2	2	1	1
Total Contribution of COs to POs	**8**	**9**	**9**	**8**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**60**	**53**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

CORE- 5: OPERATING SYSTEM – (U21IT405)

COURSE CONTENT

UNIT-I: OPERATING SYSTEM (L-11+T-1 HOURS)

What is an Operating System? : Computing System Architecture: Desktop Systems, Multiprocessor Systems, Distributed Processing, Cluster Systems, Hand-held Systems. Functions and Structure, Difference services of the Operating System, Users of system Calls, issue of portability, users view of the operating system, Graphical user interface, Operating System Structure ,virtual machine,booting

UNIT-II: PROCESS MANAGEMENT (L-11+T-1 HOURS)

Introduction: What is process? Evolution of multiprogramming, Context Switching , Process States , Process State Transitions , Process Control Block , Process hierarchy , Operation on a process , create a process , kill a process, dispatch a process , change the priority of a process Block a process , dispatch a process , time up a process wake up a process , Suspend/resume operation, Process Scheduling ,Multithreading.

UNIT-III: INTER-PROCESS COMMUNICATION (L-11+T-1 HOURS)

Inter-Process Communication: The producer/Consumer Problems, solutions to the producer, consumer problems, and Classical IPC problems. **Deadlocks:** Introduction, Graphical representation of deadlock, deadlock prerequisites, deadlock strategies.

UNIT-IV: MEMORY MANAGEMENT (L-11 + T-1 HOURS)

Introduction: Single Contiguous memory management, fixed partition memory management, variable partitions, non-contiguous allocation, paging, segmentation, combined system, virtual memory management system.

UNIT-V: INFORMATION MANAGEMENT (L-11 + T-1 HOURS)

File System: Device Driver, Terminal I/O,CD – ROM. **Case Study:** LINUX ,Introduction, UNIX and LINUX: A Comparison, Process Management, Process Scheduling, Memory Management , File Management , Device Drivers , Security.

TEXT BOOKS:

1. Operating Systems – Achyut S Godbole, Tata McGraw – Hill Publishing Company, New Delhi, 2nd Edition, 2005.

2. Operating System – Harvey M. Deitel, Paul J Deitel. David R. Choftness, Third Edition, Pearson, 2004.

REFERENCE BOOKS:

1. Operating Systems, Internals and Design Principles, William Stallings, PHI, 2008.
2. Operating System Concepts – Silverschatz and Galvin, 6th Edition, John Wiley & Sons, Inc., 2004.
3. An Introduction to Operating Systems – Concepts and Practice, Pramod Chandra P. Bhatt, Prentice Hall of India, 2007.

WEB REFERENCES:

1. https://www.tutorialspoint.com/operating_system/index.htm
2. https://www.javatpoint.com/os-process-management-introduction
3. https://www.guru99.com/process-management-pcb.html
4. https://technobyte.org/memory-management-os-simple-explanation/
5. http://www.notesale.co.uk/more-info/21042/Information-Management-in-Operating-Systems
6. https://www.javatpoint.com/os-memory-management-introduction

CORE LAB -4: RELATIONAL DATABASE MANAGEMENT SYSTEM LAB (U21IT4P4)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 4	U21IT4P4	Relational Database Management System Lab	-	-	45	2

Contact hours per semester: 45
Contact hours per week: 3

Year	Semester	Internal Marks	External Marks	Total Marks
Second	Fourth	40	60	100

PREAMBLE

To provide the students a strong foundation on database technology and to learn the fundamentals of data models to make a study of SQL and relational database design.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand Sql and Pl/sql	K1,K2
CO2	apply the concept of aggregate operators, trigger, joins and sub queries	K3
CO3	analyze the concept of different commands in Sql	K4
CO4	evaluate the various mathematical operations using conditional structure.	K5
CO5	create tables of students, course, employee using PL/SQL Procedure and triggers.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	1	**2**	2	1
CO2	2	2	2	2	2	2	1
CO3	2	2	2	2	2	0	2
CO4	2	1	1	2	1	2	2
CO5	1	1	1	2	1	2	2
Total Contribution of COs to Pos	9	**8**	**8**	**9**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**53**	**60**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0 – No Applicable)

CORE-Lab - 4: RELATIONAL DATABASE MANAGEMENT SYSTEM LAB – (U21IT4P4)

LIST OF PRATICALS

1. Create a simple table and write three queries to process a table.
2. Demonstrate query processing using aggregate operators.
3. Write oracle code for demonstrating the Database Querying – Simple queries, Nested queries, Sub queries and Joins.
4. Write oracle code to create employee records and delete the retired employees and store it on to another table with same structure.
5. Create a course table and create a procedure that displays the instructor details, class details and student details of a particular table which the user inputs.
6. Write a database trigger before insert for each row on the course table not allowing transactions on Sundays and Saturdays.
7. Create a package that contains overloaded functions for
    i. Adding five integers
    ii. Subtracting two integers
    iii. Multiplying three integers
8. Write PL/SQL block to increase the salary by 10% if the salary is > 2500 and < 3000.
9. Write PL/SQL block to display the names of those employees getting salary > 3000. Create and insert records into the following tables. (Insert minimum 10 records in each table).
10. Create Student information table.
11. Create Department information table.
12. Create Instructor's information table.
13. Create Course information table.
14. Create Schedule type details.
15. Create Student grade information table in PL/SQL.

TEXT BOOKS:

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan "Database System Concepts" McGraw –Hill Education, 2010.
2. Kevin Loney, George Koch And the Experts at TUSC, "ORACLE 9i The Complete Reference", Tata McGraw – Hill Publishing Company Ltd., New Delhi.
3. Database Systems RamezElmasri, Shankant B. Navathe – 6th Edition – Pearson.

REFERENCE BOOKS:

1. Rajesh Narang – "Database Management Systems", PHI Learning Pvt. Ltd., 2006.
2. Raghu Ramakrishnan, Johannes Gehrke, "Database Management Systems", McGraw – Hill Education, 2002.
3. Michael Abbay, Mike Corey, Ian Abramson, "ORACLE 9i A Beginner's Guide", Tata McGraw – Hill Publishing Company Ltd., New Delhi, 2002.
4. The Database Application Book using the MYSQL Database Gehani – Universities Press.

WEB REFERENCES:

1. https://www.javatpoint.com/dbms-er-model-concept
2. https://beginnersbook.com/2015/04/mapping-constraints-in-dbms/
3. https://www.tutorialspoint.com/plsql/plsql_cursors.html
4. https://www.javatpoint.com/oracle-inner-join
5. https://www.tutorialspoint.com/plsql/plsql_packages.html

CORE ELECTIVE – II GROUP

OPERATIONS RESEARCH & NUMERICAL ANALYSIS- U21IT4E2A

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - II	U21IT4E2A	Operations Research & Numerical Analysis	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**25**	**75**	**100**

PREAMBLE

This course provides to know about transportation and assignment problems in Operation Research and to solve sequencing problem and simultaneous equations. Students will able to solve Transportation Problem, Assignment Problem, & Sequencing Problem.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the concept of transportation, assignment and sequence problems.	K1,K2
CO2	apply the Formulation of the Transportation Problem, Mathematical formulation of the problem, Sequencing Problem and Gauss Jordan elimination method.	K3
CO3	analyze the concept of Triangular Basis in a Transportation Problem, Cost Method or Matrix Minima Method, Vogel's Approximation Method, Assignment method, Problem of Sequencing and Inverse interpolation.	K4
CO4	evaluate the West Corner rule, type of process vs machine jobs, Gauss Jordan elimination method and Divide difference interpolation.	K5
CO5	creating an initial basic feasible solution, Calculation of inverse of a matrix and newton's interpolation formula	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	2	2	1	2	2
CO2	2	2	2	1	2	2	2
CO3	2	2	2	2	2	1	2
CO4	1	2	2	2	1	2	2
CO5	1	2	1	1	2	1	1
Total Contribution of COs to Pos	**8**	**9**	**9**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**60**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Relation)

OPERATIONS RESEARCH & NUMERICAL ANALYSIS- U21IT4E2A

COURSE CONTENT

UNIT – I: TRANSPORTATION PROBLEM (L-14 HOURS+T-1 HOUR)

Introduction: General Transportation Problem, the Transportation Table, Formulation of the Transportation Problem, Triangular Basis in a Transportation Problem. **Finding an initial basic feasible solution:** North West Corner rule, Least – Cost Method or Matrix Minima Method, Vogel's Approximation Method.

UNIT–II: ASSIGNMENT-PROBLEM (L-14 HOURS+T-1 HOUR)

Assignment-Problem: Introduction, Mathematical formulation of the problem, The Assignment method, The Travelling Salesman Problem.

UNIT–III:SEQUENCING-PROBLEM (L-14 HOURS+T-1 HOUR)

Sequencing-Problem: Introduction, Problem of Sequencing, Basic Terms used in sequencing, Processing n jobs through two machines ,Processing n jobs through k machines, Processing 2 jobs through k machines.

UNIT–IV: SIMULTANEOUS EQUATIONS (L-14 HOURS+T-1 HOUR)

Matrix: Basic Definitions, Types of matrix**,** Back substitutions, Determinant, Cofactor of a matrix, Inverse of a matrix, Gauss Jordan elimination method, Gauss - Seidel iteration method.

UNIT–V: DIFFERENCE OPERATOR (L-14 HOURS+T-1 HOUR)

Difference Operator: Newton's interpolation formula, Newton Gregory forward interpolation formula, Newton Gregory backward interpolation formula, Lagrange's interpolation formula, Divide difference interpolation(except Trignomentary functions).

TEXT BOOKS:

1. KantiSwarup, P.K. Gupta and Man Mohan, "Operations Research", Sultan Chand A Sons, New Delhi, 2014 .
2. S. Arumugam, A. ThangapandiIssac and A. Somasundaram, "Numerical Analysis", New Gamma Publishing House, Palayamkottai, 2010.

REFERENCE BOOKS:

1. T. Sankaranarayanan, Joseph A. Mangaladoss, "Operations Research", Suja Publishing House, Tirunelveli.
2. R. Panneerselvam, "Operations Research", 2nd Edition, PHI Learning (2011), New Delhi.
3. Vasishtha, "Numerical Analysis", Krishna Prakashan Media (P) Ltd. (2010) , Meerut.

WEB REFERENCES :

1.https://towardsdatascience.com/operations-research-in-r-transportation-problem

2. https://towardsdatascience.com/operations-research-in-r-assignment-problem.

3.http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/mathematics/14._operations_research/02._linear_programming_problem__simplex_method_for_solving_lpp_and_big-m_method/et/9219_et_et.pdf

4. https://www.springer.com/journal/186

CORE ELECTIVE - II: SOFTWARE TESTING- U21IT4E2B

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - II	U21IT4E2B	Software Testing	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**25**	**75**	**100**

PREAMBLE

The main objectives of this course are to study fundamental concepts in software testing, to discuss various software testing issues and solutions in software unit test, integration and system testing, to expose the advanced software testing topics, such as object-oriented software testing methods.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand basic concepts and the processes that lead to software testing.	K1,K2
CO2	design test cases from the given requirements using Black box testing techniques and Identify the test cases from Source code by means of white box testing techniques.	K3
CO3	analyze user acceptance testing and generate test cases for it.	K4
CO4	evaluate the test adequacy criteria to complete the testing process.	K5
CO5	Create a test planning, test management , test process and test reporting	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	1	2	2	2	1
CO2	2	2	2	0	1	2	2
CO3	1	2	2	2	2	2	2
CO4	2	2	2	2	1	2	2
CO5	1	1	2	2	2	1	1
Total Contribution of COs to Pos	**8**	**9**	**9**	**8**	**8**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**60**	**53**	**53**	**60**	**53**

(3-Strong, 2-Medium, 1-Low,0- No Relation)

CORE ELECTIVE - II : SOFTWARE TESTING - U21IT4E2B

COURSE CONTENT

UNIT – I: SOFTWARE DEVELOPMENT LIFE CYCLE MODELS
(L-14 HOURS+T-1 HOUR)

Software Development Life Cycle models: Phases of Software project, Quality, Quality Assurance, Quality control, Testing, Verification and Validation, Process Model to represent Different Phases , Life Cycle models. **White-Box Testing:** Static Testing, Structural Testing, Challenges in White-Box Testing.

UNIT-II: BLACK-BOX TESTING (L-14 HOURS+T-1 HOUR)

Black-Box Testing: What is Black-Box Testing? , Why Black-Box Testing? , When to do Black Box Testing? , How to do Black-Box Testing? Challenges in White Box Testing. **Integration Testing:** Integration Testing as Type of Testing, Integration Testing as a Phase Testing, Scenario Testing, Defect Bash.

UNIT–III: SYSTEM AND ACCEPTANCE TESTING (L-14 HOURS+T-1 HOUR)

System and Acceptance Testing: system Testing Overview, Why System testing is done?, Functional versus Non-functional Testing, Functional Testing, On-functional Testing, Acceptance Testing ,Summary of Testing Phases.

UNIT–IV: PERFORMANCE TESTING (L-14 HOURS+T-1 HOUR)

Factors governing Performance Testing: Methodology of Performance Testing, tools for Performance Testing, Process for Performance Testing, Challenges. **Regression Testing:** What is Regression Testing? Types of Regression Testing, When to do Regression testing, how to do Regression Testing, Best Practices in Regression Testing.

UNIT – V: TEST PLANNING, MANAGEMENT, EXECUTION AND REPORTING
(L-14 HOURS+T-1 HOUR)

Test planning, Management, Execution and Reporting: Test Planning, Test Management, Test Process, Test Reporting, and Best Practices. **Test Metrics and Measurements:** Project Metrics, Progress Metrics, Productivity Metrics, Release Metrics.

TEXT BOOKS:

1. Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.
2. Limaye M.G., "Software Testing Principles, Techniques and Tools", Second Reprint, TMH Publishers, 2010.
3. Aditya P.Mathur, "Foundations of Software Testing", 2nd Edition, Pearson Education, 2013.

REFERENCE BOOKS:

1. Effective Methods of Software Testing, William E. Perry, 3rd Edition, Wiley India.
2. Software Testing, Renu Rajani, Pradeep Oak, 2007, TMH.

WEB REFERENCES:

1. https://www.javatpoint.com/software-engineering-sdlc-models
2. https://www.javatpoint.com/software-engineering-software-development-life-cycle
3. https://r.search.yahoo.com/cbclk2
4. http://ix.cs.uoregon.edu/~michal/Classes/W98/LecNotes/10-Testing-system.pdf
5. https://images.template.net/wp-content/uploads/2016/01/10062802/Acceptance-Test-Plan-Free-PDF-Template-Download.pdf

CORE ELECTIVE – II
OBJECT ORIENTED ANALYSIS AND DESIGN- U21IT4E2C

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Elective - II	U21IT4E2C	Object Oriented Analysis and Design	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**25**	**75**	**100**

PREAMBLE

This course provides to understand the fundamentals of object modelling and differentiate Unified Process from other approaches. It also designs with static UML diagrams and UML dynamic and implementation diagrams. We must know the improvement of the software design with design patterns and also to test the software against its requirements specification.

COURSE OUTCOMES (COS)

On successful completion of the course, the learners should be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the fundamentals of OOAD, UML diagram, dynamic diagram.	K1,K2
CO2	apply the concept of Use case Modelling, Associations, Attributes, Dynamic Diagrams and GRASP and Object Oriented Methodologies.	K3
CO3	analyze case Modelling, Aggregation and Composition, Component and Deployment Diagrams, Applying GoF design patterns and Mapping design to code.	K4
CO4	evaluate the Class Diagrams, State Diagrams and Activity diagram.	K5
CO5	Develop Test Cases and Test Plans	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	2	3	2	2	2
CO2	2	2	2	0	2	2	2
CO3	2	2	2	2	0	2	1
CO4	1	2	0	2	2	1	2
CO5	1	1	2	2	2	1	1
Total Contribution of COs to Pos	**8**	**8**	**8**	**9**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**53**	**53**	**60**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0- No Relation)

CORE ELECTIVE - II : OBJECT ORIENTED ANALYSIS AND DESIG- U21IT4E2C

COURSE CONTENT

UNIT – I: UNIFIED PROCESS AND USE CASE DIAGRAMS (L-14 HOURS+T-1 HOUR)

Introduction to OOAD with OO Basics: Unified Process,UML diagrams, Use Case, Case study, the Next Gen POS system, Inception, Use case Modelling ,Relating Use cases, include, extend and generalization ,When to use Use-Cases.

UNIT - II: STATIC UML DIAGRAMS (L-14 HOURS+T-1 HOUR)

Static UML Diagrams: Class Diagram,Elaboration,Domain Model, Finding conceptual classes and description classes,Associations,Attributes,Domain model refinement, Finding conceptual class Hierarchies, Aggregation and Composition, Relationship between sequence diagrams and use cases, When to use Class Diagrams.

UNIT - III: DYNAMIC DIAGRAMS (L-14 HOURS+T-1 HOUR)

UML interaction diagrams: System sequence diagram, Collaboration diagram, when to use Communication Diagrams, State machine diagram and Modelling, When to use State Diagrams, Activity diagram, when to use activity diagrams. **Implementation Diagrams**: UML package diagram, when to use package diagrams, Component and Deployment Diagrams, When to use Component and Deployment diagrams.

UNIT – IV: GRASP (L-14 HOURS+T-1 HOUR)

GRASP: Designing objects with responsibilities, Creator, Information expert, Low Coupling, High Cohesion, and Controller. **Design Patterns**: Creational, factory method, structural, Bridge, Adapter, behavioural, Strategy, observer, Applying Gof design patterns, Mapping design to code.

UNIT – V: OBJECT ORIENTED METHODOLOGIES (L-14 HOURS+T-1 HOUR)

Object Oriented Methodologies: Software Quality Assurance, Impact of object orientation on Testing, Develop Test Cases and Test Plans.

TEXT BOOKS:

1. Craig Larman, ―Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development‖, Third Edition, Pearson Education, 2005.
2. Ali Bahrami - Object Oriented Systems Development - McGraw Hill International Edition – 1999

REFERENCE BOOKS:

1. Erich Gamma, a n d Richard Helm, Ralph Johnson, John Vlissides, ―Design patterns: Elements of Reusable Object-Oriented Software‖, Addison-Wesley, 1995.
2. Martin Fowler, ―UML Distilled: A Brief Guide to the Standard Object Modelling Language‖, Third edition, Addison Wesley, 2003.

WEB REFERENCES:

1. https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-use-case-diagram/
2. https://en.wikipedia.org/wiki/Use_case
3. https://link.springer.com/content/pdf/10.1007%2F1-85233-856-3_3.pdf
4. https://www.guru99.com/use-case-diagrams-example.html

EMPLOYABILITY ENHANCEMENT: II

BASIC PROGRAMMING DESIGN (U21IT4EEA)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - IV	Employability Enhancement:II	U21IT4EEA	Basic Programming Design	30	-	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**50**	**--**	**50**

PREAMBLE

This subject helps students to study the basic concepts of Programming and understand the structures of programming constructs.

COURSE OUTCOMES (COs)

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the Role of Information Technology, Data	K1,K2
CO2	apply the Data representation, Memory Hierarchy, Emerging Trends in Information Technology, Media	K3
CO3	Analyze what are the trends, input and output devices, internet tools and techniques.	K4
CO4	evaluate how to use internet, Media ,Memory, Tools	K5
CO5	create the application oriented technologies in IT	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	0	2	2	0	2	2
CO2	2	2	2	2	0	2	1
CO3	1	2	2	0	0	2	2
CO4	2	2	1	2	0	0	2
CO5	2	2	1	3	0	2	1
Total Contribution of COs to POs	**9**	**8**	**8**	**9**	**0**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**60**	**53**	**0**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

BASIC PROGRAMMING DESIGN - (U21IT4EEA)

COURSE CONTENT

UNIT I: COMPUTER PROGRAM (L-6 Hours)

Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables.

UNIT II: PROGRAM TESTING AND DEBUGGING (L-6 Hours)

Program Testing and Debugging: Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming.

UNIT III: COMPUTER LANGUAGES (L-6 Hours)

Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language.

UNIT IV: COMPUTER SOFTWARE (L-6 Hours)

Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories: System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software, Shareware, Commercial Software and Proprietary Software.

.UNIT V: EVOLUTION OF INTERNET (L-6 Hours)

Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses.

TEXT BOOKS:

1. ITL Education Solutions Limited,"Introduction to Computer Science", June 2011, Kindle Edition, Pearson Publications.
2. V.Rajaram, " Fundamentals of Computers", 5th Edition 2003, Prentice Hall India Learning Private Limited.

REFERENCE BOOKS:

1. Peter Norton's," Introduction to Computers, 7th Edition July 2017, Tata McGraw Hill Education.

WEB REFERENCES:

1. https://books.google.co.in/books?id=csnikdmufvyc&newbks=0&printsec=frontcover&hl=en&redir_esc=y#v=onepage&q&f=false
2. https://www.d.umn.edu/~rmaclin/cs1011/index.html
3. https://silo.tips/download/introduction-to-computer-science-notes-cs110-for-b-tech-bs-cs

EMPLOYABILITY ENHANCEMENT : II

SCRIPTING LANGUAGES (U21IT4EEB)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
PART-IV	Employability Enhancement: II	U21IT4EEB	Scripting Languages	30	-	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Second	**Fourth**	**-**	**50**	**50**

PREAMBLE

This course helps the students to learn the concept of Scripting Languages. To learn various concepts and techniques of solving the problems and implement those ideas using Scripting Languages.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand Basic structure – Traditional Text Format- using forms.	K1, K2
CO2	apply the concepts of Introduction to scripting –operators: logical-Increment and decrement operators	K3
CO3	analyze the concept of Adding VBScript to web pages-Handling non supporting browsers-working with variables-arrays-constants-objects.	K4
CO4	evaluate the concept of processing instructions-Applications of XML- COMMENTS-XML names spaces	K5
CO5	build programs using functions Web Application Model, How AJAX Works, XML HttpRequest Object	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	0	2	2	0	2	2
CO2	2	2	2	2	0	2	1
CO3	1	2	2	0	0	2	2
CO4	2	2	1	2	0	0	2
CO5	2	2	1	3	0	2	1
Total Contribution of COs to POs	**9**	**8**	**8**	**9**	**0**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**60**	**53**	**0**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

EMPLOYABILITY ENHANCEMENT:II
SCRIPTING LANGUAGES (U21IT4EEB)
COURSE CONTENT

Unit I : HTML **(L-6 Hours)**

HTML: Basic structure – Traditional Text Format- using forms –tables- frames and framesets-image with HTML-creation lists and quotations-URL and Linking-Style Sheets: HTML cascading style sheets-Inline Styles-Creating style sheets with the style elements- Building a web page.

Unit II: JAVASCRIPT **(L-6 Hours)**

JavaScript: Introduction to scripting –operators: logical-Increment and decrement operators – Control structures- Functions: Definition-scope rules-recursion-Arrays: Declaring arrays-passing arrays to functions-sorting arrays-object: Math object-string Object-Date object-Boolean object and Number object.

Unit III : VBSCRIPT **(L-6 Hours)**

VBScript: Adding VBScript to web pages-Handling non supporting browsers-working with variables-arrays-constants-objects and VBScript-Linking VBScript with objects validity using forms

Unit IV : XML **(L-6 Hours)**

XML: XML overview- features-HTML XML –processing instructions-Applications of XML-COMMENTS-XML names spaces-Schema- Extensible Style Language (XSL)-Document object model (DOM)-DOM methods- SAX

Unit V: AJAX **(L-6 Hours)**

AJAX: AJAX Web Application Model, How AJAX Works, XML HttpRequest Object – Properties and Methods, Handling asynchronous requests using AJAX **Introduction to jQuery:** Fundamentals, Selectors, methods to access HTML attributes, methods for traversing, manipulators, events, effects.

TEXT BOOKS:

1. DT Editorial Services, "HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery", 2nd Edition Jan 2016, Dreamtech Press
2. Web Programming and Interactive Technologies, scriptDemics, StarEdu Solutions India (2017)..

REFERENCE BOOKS:

1. Steven M. Schafer ,"HTML, XHTML, and CSS Bible" Fifth Edition March 2011, WILEY Publications.
2. Learn to Master HTML 5, scriptDemics 2012, StarEdu Solutions Pvt Ltd.
3. Robin Nixon, " Learning PHP, MySQL, JavaScript, CSS & HTML5", O'Reilly, 2012.

WEB REFERENCES:

1. https://Www.W3schools.Com/Html/Html_Links.Asp
2. https://Developer.Mozilla.Org/Enus/Docs/Web/Xml/Xml_Introduction
3. https://Www.Javascript.Com/

SEMESTER V

CORE- 06 : C# .NET PROGRAMMING (U21IT506)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part-III	Core – 06	U21IT506	C# .Net Programming	85	05	-	4

Contact hours per semester: 90
Contact hours per week: 6

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Fifth**	**25**	**75**	**100**

PREAMBLE

This course helps the students to knowledge of object-oriented concepts, design user experience and functional requirements C#.NET application, Create and manipulates GUI components in C# .NET, Design and Implement database connectivity using ADO.NET in window based application.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the fundamentals of C# Language Basics, Web Forms ,State management and Validation Controls.	K1,K2
CO2	apply web controls into the web pages, Cookies, Configuring Session State and Using Application State.	K3
CO3	analyze the web control events, Auto PostBack, using the validation controls and databases.	K4
CO4	evaluate the State management, Databinding and Data Controls.	K5
CO5	create a basic class, an interactive web page and the data controls	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	2	2	0	2	2
CO2	2	2	1	0	3	2	2
CO3	2	2	2	2	2	2	2
CO4	1	2	2	2	2	1	1
CO5	1	1	2	2	2	1	1
Total Contribution of COs to POs	**8**	**9**	**9**	**8**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**60**	**53**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE- 06: C# .NET PROGRAMMING – (U21IT506)

COURSE CONTENT

UNIT-I: INTRODUCTION TO .NET (L-17+T-1 HOURS)

Introduction to .NET: The Evolution of Web Development, The .NET Framework. **The C# Language:** C# Language Basics, Variables and Data Types, Variable Operations, Object-Based Manipulation, Conditional Logic, Loops, Methods.
Types, Objects, and Namespaces: The Basics About Classes, Building a Basic Class, Understanding Namespaces and Assemblies.

UNIT-II: WEB FORM FUNDAMENTALS (L-17+T-1 HOURS)

Web Form Fundamentals: Understanding the Anatomy of an ASP.NET Application, Introducing Server Controls, Taking a Deeper Look at HTML Control Classes, Using the Page Class, Using Application Events, Configuring an ASP.NET Application.
Web Controls: Stepping Up to Web Controls, Web Control Classes, List Controls, Web Control Events and AutoPostBack, An Interactive Web Page.

UNIT-III: ERROR HANDLING, LOGGING, AND TRACING (L-17+T-1 HOURS)

Error Handling, Logging, and Tracing: Avoiding Common Errors, Understanding Exception Handling, Throwing Your Own Exceptions, Using Page Tracing.
State Management: Using View State, Transferring Information Between Pages, Using Cookies, Managing Session State, Configuring Session State, Using Application State.

UNIT-IV: VALIDATION AND RICH CONTROLS (L-17 + T-1 HOURS)

Validation: Understanding Validation, Using the Validation Controls. **Rich Controls:** The Calendar, The AdRotator, Pages with Multiple Views. **Styles, Themes, and Master Pages:** Styles, Themes, Master Page Basics, Advanced Master Pages

UNIT-V: ADO.NET FUNDAMENTALS (L-17 + T-1 HOURS)

Ado.Net Fundamentals: Understanding Databases, Understanding SQL Basics, Understanding the Data Provider Model, Using Direct Data Access. **Data Binding:** Introducing Data Binding, Using Single-Value Data Binding, Using Repeated-Value Data Binding, Using Repeated-Value Data Binding. **The Data Controls:** The GridView , Formatting the GridView, Selecting a GridView Row, Editing with the GridView The DetailsView and FormView.

TEXT BOOKS:

1. Matthew MacDonald ,"Beginning ASP.NET 4.5 in C#(Apress)", Jan 2012
2. Christian Nagel, John Wiley & Sons "Professional C# and .NET", Inc ,2021

REFERENCE BOOKS:

1. Thuan L.Thai and Hoang Lam, ".NET Framework Essentials", O'Reilly, 3rd Edition,2003
2. Simon Robinson, "Advanced .NET Programming", WROX Press Ltd,2002

WEB REFERENCES:

1. https://www.geeksforgeeks.org/introduction-to-net-framework/
2. https://www.javatpoint.com/asp-net-web-form-introduction
3. https://www.studocu.com/in/document/university-of-mumbai/aspnet-with-c/chapter-08-error-handling-logging-and-tracing/
4. https://www.c-sharpcorner.com/UploadFile/puranindia/validation-controls-in-Asp-Net/
5. https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/

CORE 7: Web Programming using PHP - (U21IT507)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core – 7	U21IT507	Web Programming using PHP	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Fifth**	**25**	**75**	**100**

PREAMBLE

This course has been designed to impart practical knowledge on Android application programming thus to reduce the gap between the demand and supply of competent Android Application Developers.

COURSE OUTCOMES (COs)

On successful completion of the course, the students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	Understand the basic concepts of Internet Standards, PHP and MYSQL	K1, K2
CO2	Practice Client and Server-side technologies, Controls and Functions, Mathematical Operators.	K3
CO3	Focus on Sessions, Cookies and MySQL Queries	K4
CO4	Estimate Session code and Functions	K5
CO5	Creating Arrays and Building forms from queries	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	0	1	2	2
CO2	2	2	2	2	2	1	2
CO3	2	2	2	2	1	1	1
CO4	2	2	1	2	3	2	1
CO5	1	1	1	2	1	2	2
Total Contribution of COs to POs	**9**	**9**	**8**	**8**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**53**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE 7: WEB PROGRAMMING USING PHP (U21IT507)

COURSE CONTENT

UNIT-I: INTRODUCTION INTERNET STANDARDS (L-11 + T-1 HOURS)

Introduction to WWW, WWW Architecture, SMTP, POP3, File Transfer Protocol, Overview of HTTP, HTTP request, response, Generation of dynamic web pages, Client side Scripting Vs Server side scripting HTML, Introduction to HTML, HTML Tags, Creating Forms, Creating tables, Managing home page, Ethics in Web Programming.

UNIT – II: PHP & MYSQL (L-11 + T-1 HOURS)

What is PHP?, What is MySQL?. **Server-side Web Scripting**: Static HTML, Client-side Technologies, Server-Side Scripting. **Syntax and Variables:** Comments, Variables, Types in PHP, the Simple Types, outputs.

UNIT – III: CONTROL AND FUNCTIONS (L-11 + T-1 HOURS)

Boolean expressions, Branching, Looping, terminating execution, using functions, Function Documentation, Defining your own function, Functions and variable scope. **Passing information between Pages**-GET Arguments, POST Arguments, Formatting Form Variables, PHP super global arrays. **Strings**-Strings in PHP, String Functions. **Arrays and Array Function:** .Creating Arrays, Retrieving Values, Multidimensional Arrays, Deleting from Arrays.

UNIT – IV: NUMBERS (L-11 + T-1 HOURS)

Numerical Types, Mathematical operators, Simple Mathematical Functions, Randomness. **Filesystem and System Functions-** Understanding PHP File Permissions, File Reading and Writing Functions, Filesystem and Directory Functions, Date and Time Functions, Calendar Conversion Functions. **Sessions, Cookies, and HTTP:** How Sessions Work in PHP, Sample Session Code, Session Functions, Cookies, Sending HTTP Headers.

UNIT - V: PHP/MYSQL (L-11 + T- 1 HOURS)

Choosing a Database, Advanced Features to Look For, PHP, Supported Databases. **PHP/MySQL Functions**-Connecting to MySQL, Making MySQL Queries, Fetching Data Sets, Multiple Connections, Error Checking, Creating MySQL Databases with PHP, MySQL Function. **Displaying Queries in Tables**: HTML Tables and Database Tables, Creating the Sample Tables. **Building Forms from Queries**: HTML Forms, Basic Form Submission to a Database, Self Submission, Editing Data with an HTML Form**.**

TEXT BOOKS:

1. Harvey Deitel and Abbey Deitel, "Internet and World Wide Web - How To Program", Fifth Edition, 2011, Pearson Education.
2. Tim Converse and Joyce Park with Clark Morgon, "PHP 5 and MySQL Bible‖", 1st Edition, 2008, New Delhi: Wiley-India.

REFERENCE BOOKS:

1. Tim Converse and Joyce Park with Clark Morgon, "PHP 5 and MySQL Bible‖", 1st Edition, 2008, New Delhi: Wiley-India.
2. NarainGehani, "The Database Application Book Using the MYSQL Database System",1st Edition, 2012, University Press.
3. Luke Welling, Laura Thomson,"PHP and MySQL Web Development", Fifth Edition,2016, Pearson Education, India.
4. Julie C.Meloni , "PHP,MySQL and Apache All in One",5th Edition,2012, Sams Teach Yourself.
5. Alan Forbes, "The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and MySQL", 6th Edition,2012, BeakCheck LLC .

WEB REFERENCES:

1. http://www.crectirupati.com/sites/default/files/lecture_notes/WIT%20LECTURE%20NOTES%20by%20RAGINI.pdf
2. https://www.geeksforgeeks.org/php-mysql-database-introduction/
3. https://education.fsu.edu/wp-content/uploads/2015/04/Learning-PHP-MySQL-JavaScript-and-CSS-2nd-Edition-1.pdf
4. https://www.javatpoint.com/php-functions
5. https://www.w3schools.com/php/php_ref_filesystem.asp
6. https://www.guru99.com/cookies-and-sessions.html
7. http://itwebtutorials.mga.edu/php/chp9/mysql-functions.aspx
8. http://www2.hawaii.edu/~takebaya/cent285/postgresql_sql_php/postgresql_sql_php.html
9. https://www.freecodecamp.org/news/html-tables-all-there-is-to-know-about-them-d1245980ef96/

CORE-8: SOFTWARE ENGINEERING (U21IT508)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core – 8	U21IT508	Software Engineering	65	10	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Fifth**	**25**	**75**	**100**

PREAMBLE

This course helps the students to learn the methodologies involved in the development and maintenance of software over its entire life cycle and to understand the concepts of modelling, implementation and various testing strategies and the use of CASE Tools.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the Software Engineering Activities, Skills and challenge	K1,K2
CO2	apply the Testing Techniques for SQA	K3
CO3	analyze the knowledge on Data Structure and Database Design	K4
CO4	evaluate the object oriented approach and technology	K5
CO5	create Project and Test Cases	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	1	1	2	2
CO2	2	2	2	2	2	2	2
CO3	2	1	0	2	2	1	2
CO4	2	1	2	2	1	1	1
CO5	1	2	2	2	2	2	1
Total Contribution of COs to Pos	**9**	**8**	**8**	**9**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**53**	**53**	**60**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0 – No Correlation)

CORE-8: SOFTWARE ENGINEERING– (U21IT508)

COURSE CONTENT

UNIT – I SOFTWARE ENGINEERING: (L-14 + T-1 HOURS)

Software Engineering: Definition ,Software Engineering Activities, Skills and challenge – **Components of Software Engineering :** SSAD and OOSAD – Software Life Cycle Model – Software Development Model – CMM for Process Improvement Software Process Model – **Software Estimation** : Size Effort and Cost, **Software Metrics** : Introduction – Estimation of Effect and Schedule – COCOMO – Software Cost Estimation.

UNIT – II SOFTWARE QUALITY ASSURANCE: (L-14 + T-1 HOURS)

Software Quality Assurance: Testing Techniques for SQA – Software Testing Strategies – Software Engineering Tools – Introduction – Analysis Tools – Requirements Engineering – Work Breakdown Structure – Prototyping – System Analysis – System Modelling – Structure System Analysis – Software Requirement Specification.

UNIT – III SYSTEM DESIGN: (L-14 + T-1 HOURS)

System Design: Introduction – Data Structure and Database Design- Design Development Process – System Design Architecture – System Behavior design – Architecture and Choices – Architecture and Non – Functional Requirements – Design Specification Documentation – User Interface Design – User Interface Analysis and Design – Guidelines for Designing UI Components – Procedural Design.

UNIT – IV OBJECT ORIENTED APPROACH AND TECHNOLOGY: (L-14 + T-1 HOURS)

Object Oriented Approach and Technology: Basis of Objects – Object Properties – Object Oriented System Development Cycle – UML – Static Class Diagrams – Use Case Diagrams – Behavior Diagrams.

UNIT – V SOFTWARE PROJECT MANAGEMENT: (L-14+ T-1 HOURS)

Software Project Management: Introduction - Basic Concepts – Project Management – Software Development Process Management – Management of Software Workflows – Evaluation of Workflow Process – Integration of Software Engineering Management and Project Life Cycle – Testing for Quality – Functional Testing – System Testing – User Satisfaction Testing – Test Cases and Test Plans – Software System Maintenance.

TEXT BOOKS:

1. Waman S. Jawadekar, "Software Engineering Principles and Practice",2004, Tata McGraw Hill Education Private Limited, New Delhi.
2. Roger S. Pressman, "Software Engineering A Practitioner Approach",2001 5th Edition, Tata McGraw Hill Education Private Limited, New Delhi.

REFERENCE BOOKS:

1. Timothy C. Lethbridge and Robert Laganiere, "Object – Oriented Software Engineering: Practical software Development using UML and Java", 2005, 2nd Edition, Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. Ian Sommerville, "Software Engineering", 9th Edition 2011, Pearson Education Pvt, .Ltd.Delhi

WEB REFERENCES:

1. http://160592857366.free.fr/joe/ebooks/ShareData/Software%20Engineering%20-%20Principles%20and%20Practice%20By%20Hans%20van%20Vliet%20-%20Wiley%202007.pdf
2. https://mrcet.com/downloads/digital_notes/CSE/III%20Year/SOFTWARE%20ENGINEERING%20NOTES.pdf
3. https://staff.emu.edu.tr/nazifedimililer/Documents/courses/itec513/%5BHans_van_Vliet%5D_Software_Engineering_Principles_%28BookFi%29-2.pdf

CORE LAB -5: C# .NET PROGRAMMING LAB(U21IT5P5)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 5	U21IT5P5	C# .Net Programming Lab	-	-	90	3

Contact hours per semester: 90
Contact hours per week: 6

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Fifth**	**40**	**60**	**100**

PREAMBLE

To provide the students can design and develop programs in C# .net Basics, Web controls & ADO access.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the variables and data types, conditional logic, loops and for Object oriented concepts of C#.	K1,K2
CO2	practice the use of different types of web controls.	K3
CO3	implement state management using Rich Control and AdRotator control.	K4
CO4	evaluate the validation operation	K5
CO5	create an interactive web pages.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	2	1	1	**2**	2	1
CO2	1	1	1	1	1	1	1
CO3	1	1	1	1	1	-	1
CO4	1	1	1	1	1	1	1
CO5	1	1	1	2	1	1	1
Total Contribution of COs to Pos	**10**	**9**	**8**	**10**	**8**	**9**	**9**
Weighted Percentage of COs Contribution to POs	**66**	**60**	**53**	**66**	**53**	**60**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE LAB -5: C# .NET PROGRAMMING LAB(U21IT5P5)

LIST OF PRATICALS

1. Write C# programs for understanding C# basics involving
   a. Variables and Data Types b. Conditional Logic c. Loops d. Method calling
2. Write C# programs for Object oriented concepts of C# such as:
   a. Program using classes b. Object based Manipulation c. Namespaces and assemblies
3. Write a Program to generate the Login control.
4. Write a program using Web Control Events and using AutoPostBack.
5. Write a program to create an Interactive Web Pages.
6. Write a program using Exception Handling.
7. Design ASP.NET Pages for State Management using
   a. Cookies b. Session State c. Application State
8. Write a Program to using Rich Control and AdRotator control.
9. Write a Program to display the selected date in the calendar.
10. Write a Program to perform validation operation.
11. Design the Master Page and apply the various styles and themes.
12. Write a Program to create link in data list.
13. Write a Program to display how data bind using dropdown list.
14. Write a Program to implement paging concept data grid and dataset.
15. Create Student Mark List using SQL Provider.

TEXT BOOKS:

1. Matthew MacDonald ,"Beginning ASP.NET 4.5 in C#(Apress)", Jan 2012
2. Christian Nagel, John Wiley & Sons "Professional C# and .NET", Inc ,2021

REFERENCE BOOKS:

1. Thuan L.Thai and Hoang Lam, ".NET Framework Essentials", O'Reilly, 3rd Edition,2003
2. Simon Robinson, "Advanced .NET Programming", WROX Press Ltd,2002

WEB REFERENCES:

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2. https://www.javatpoint.com/asp-net-web-form-introduction
3. https://www.studocu.com/in/document/university-of-mumbai/aspnet-with-c/chapter-08-error-handling-logging-and-tracing/
4. https://www.c-sharpcorner.com/UploadFile/puranindia/validation-controls-in-Asp-Net/
5. https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/
6. https://www.c-sharpcorner.com/UploadFile/0fd387/data-controls-in-Asp-Net/

CORE LAB- 6: WEB PROGRAMMING LAB (U21IT5P6)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core Lab – 6	U21IT5P6	Web Programming Lab	-	-	90	3

Contact hours per semester: 90
Contact hours per week: 6

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Fifth**	**40**	**60**	**100**

PREAMBLE

This course has been designed to impart practical knowledge on Android application programming thus to reduce the gap between the demand and supply of competent Android Application Developers.

COURSE OUTCOMES (COs)

On successful completion of the course, the students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand Android, Android Architecture, Activities, components of a screen, Using Basic views, Pictures and Menus with views.	K1, K2
CO2	apply the concepts of IDE, Styles and Themes to an activity, View and view groups, Using Picker Views, Menus with Views.	K3
CO3	Analyze the concept of Debugging android, utilization of indents,Activities,user Interface, Menus.	K4
CO4	evaluate the concepts of IDE, Fragments, Frame Layout, Persisting Data to Files.	K5
CO5	Creating Android Virtual Devices – The Android Developer Community – Launching the first Android Application	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	0	1	2	2
CO2	2	2	2	2	2	1	2
CO3	2	2	2	2	1	1	1
CO4	2	2	1	2	3	2	1
CO5	1	1	1	2	1	2	2
Total Contribution of COs to POs	**9**	**9**	**8**	**8**	**8**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**53**	**53**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE LAB-6: WEB PROGRAMMING LAB(U21IT5P6)

LISTS OF PRATICALS

1. String manipulation
2. Math operations
3. Array functions and operations
4. Looping structures utilization
5. Page hit counter.
6. Input/output operations
7. Reading/writing files and Directories
8. Implement a PHP program to process HTML forms.
9. Events Calendar application using PHP
10. MySQL Connectivity and Database manipulations
11. Session maintenance in PHP

TEXT BOOKS

1. Harvey Deitel and Abbey Deitel, "Internet and World Wide Web - How To Program", Fifth Edition, 2011, Pearson Education.
2. Tim Converse and Joyce Park with Clark Morgon, "PHP 5 and MySQL Bible‖", 1st Edition, 2008,New Delhi: Wiley-India

REFERENCE BOOKS

1. Pratiyush Guleria, "PHP Beginners Practical Guide", 1st Edition, 2018, BPB Publications.
2. A.A.Puntambekar, "Web Based Application Development with PHP for MSBTE I Scheme", 1st Edition, 2020, Technical Publications,.
3. Luke Welling, Laura Thomson,"PHP and MySQL Web Development", Fifth Edition, 2016, Pearson Education, India.
4. Julie C.Meloni , "PHP,MySQL and Apache All in One",5th Edition, 2012, Sams Teach Yourself.

WEB REFERENCES

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2. https://www.geeksforgeeks.org/php-mysql-database-introduction/
3. https://education.fsu.edu/wp-content/uploads/2015/04/Learning-PHP-MySQL-JavaScript-and-CSS-2nd-Edition-1.pdf
4. https://www.javatpoint.com/php-functions
5. https://www.w3schools.com/php/php_ref_filesystem.asp
6. https://www.guru99.com/cookies-and-sessions.html
7. http://itwebtutorials.mga.edu/php/chp9/mysql-functions.aspx
8. http://www2.hawaii.edu/~takebaya/cent285/postgresql_sql_php/postgresql_sql_php.html
9. https://www.freecodecamp.org/news/html-tables-all-there-is-to-know-about-them-d1245980ef96/

SKILL ENHANCEMENT-I : WOMEN STUDIES- U21SE5S1

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – IV	Skill Enhancement-I	U21SE5S1	Women Studies	30	-	-	2

Contact hours per Semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Third	Fifth	-	50	50

Preamble

This is an introductory course that emphasizes the roles of women, their experiences and contributions to society and enables students to analyze contemporary issues from feminist perspective

Course Outcomes

On successful completion of the Course, the learners will be able to

S. No.	Course Outcome	Knowledge Level
1.	remember the need for gender sensitisation , recall the role of Women as individuals in families and societies, recognise matriarchy and matrilineal societies. list out Women's movements and woman achievers, identify the role of women in National development, identify methods to promote inclusion of women in development of all sectors	K1
2.	understand the terms and concepts used in women's studies, recognize the need for gender sensitization, discuss about domestic violence against women, illustrate the representation of women in media/sports/politics/arts and literature, demonstrate how gender has been socially constructed and maintained through a variety of institutions	K2
3.	apply concepts and theories of Women's Studies to life experiences and processes, provide guidance to ignorant women on women's rights, investigate gender issues and gender violence leashed out on women, review the life of women achievers	K3
4.	analyse gender roles in domestic personal sphere and social spheres, explore the socio-cultural, socio-political and economic factors that deter women's talent, analyse socio-political systems and contemporary issues from feminist perspective	K4
5.	evaluate the scope, importance and challenges of Women's Studies, appraise the role of women in rural and community development, assess the extent to which women have contributed to preservation of environment and natural resources and in turn to national development, appreciate the life of women achievers, reflect on the role of women in family and society	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

WOMEN STUDIES- U21SE5S1

COURSE CONTENT

Unit I: Introduction to women's studies (T-6 Hrs)

Definition, need, scope, importance and challenges of Women's Studies- Emergence of Women's studies as an academic discipline in India – Need for gender sensitisation - Women as individuals in families and societies- Matriarchy and matrilineal societies. Women's movements - global and local.

Unit II: Role of women in family (T-6 Hrs)

Study of the evolution of women's role – Women as individuals in families-Gender roles in domestic/personal sphere- Women's roles, aspirations and familial expectations on women - Foeticide, Female infanticide, Sex selective abortion, Domestic violence, Gender issues, Gender violence, Maternal mortality rate, Property rights, Reproductive rights – Women's health and nutrition

Unit III: Role of women in society (T-6 Hrs)

Gender roles in social spheres- Choice of profession - Self , Family and Societal pressures, Decision making/ Leadership roles- myths and misconceptions- roles expected from women – stereotyping – Representation in media / politics / arts and literature / sports

Unit IV: Against all odds- Women achievers (T-6 Hrs)

Socio-cultural, socio-political and economic factors that deter women's talent- Life narratives of women achievers- Savitri Bhai Phule, Dr.Muthu Lakshmi Reddy, Kiran Mazumdhar Shah, Kalpana Chawla, Saina Nehwal, Sania Mirza, Deepika Palikkal, Mary Kom, P T Usha, Smriti Mandanna, Arundhati Roy, Vandana Siva, Kamala Das, Indira Goswami, Amrita Pretham, Anita Desai, Jhumpa Lahiri, Kiran Desai, Shashi Deshpande.

Unit V: Role of women in National Development: (T-6 Hrs)

Role of women in rural and community development- community bio-diversity conservation – gender and Agro biodiversity-role of women in seed preservation- sustainable development- Joint forest management,- Chipko movement, Narmada Bachao Andolan—India's - Neem patent victory-Living Democracy Movement for reclaiming life's diversity and freedom

TEXT BOOKS :

1. Maithreyi Krishna Raj. (1986). "Women Studies in India: Some Perspectives". Popular Prakasham, Bombay.
2. Sharmila Rege, (Ed.). (2003). "Sociology of Gender: The Challenge of Feminist Sociological Knowledge". Sage Publications, New Delhi
3. Veena Majumdar. (1974). "Report on the committee on the Status of Women: Towards Equality". Journal of Women Studies.
4. Kadambari,V. 2009. Gender Studies: A Primer. Chennai: RJYND
5. Devaki Jain and Pam Rajput (Ed). (2003). "Narratives from the Women"s Studies Family: Recreating Knowledge, Sage, and New Delhi.
6. M.S.Swaminathan. (1998)."Gender Dimensions in Biodiversity Management". Konark publishers pvt ltd, New Delhi.

REFERENCE BOOKS :

1. Amy S. Wharton. (2005). "The Sociology of Gender: An Introduction to Theory and Research". (KeyThemes in Sociology) Blackwell Publishing, UK, Indian Reprint,Kilaso Books, New Delhi
2. Jasbir Jain (Ed). (2005). "Women in Patriarchy: Cross Cultural". Rawat Publications, Jaipur.
3. Lerner, Gerda. (1986). "The Creation of Patriarchy". Oxford University Press, New Delhi.
4. Mala Khullar, (Ed). (2005). "Writing the Women‟s Movement: A Reader". Zubaan, Kali for Women, New Delhi.
5. Mies, Maria. (1980). "Indian Women and Patriarchy". Concept Publishing Company, New Delhi.
6. Promilla Kapur (Ed), Empowering Indian Women, Publication Division, Government of India, New Delhi, 20
7. Mitchell, J. 1975. Women in a Man Made World. Chicago: Rand McNally & Co
8. Putnam Tong, Rosemarie. 2013. Feminist Thought: A More Comprehensive Introduction. USA: Westview.
9. Russell, Bertrand. 1936. Marriage and Morals. London: Bantam.
10. Smith, Bonnie. 2013. Women's Studies: The Basics. London: Routledge
11. Drinkwater, Barabara, Ed. 2000. Women in Sport. Oxford: Blackwell Science
12. Spence, Jean and Sarah Jane et al. 2010. Women Education and Agency 1600-2000. New York: Routledge Publishing House.
13. Nancy. 2011. Feminism and Science. Indianapolis: Indiana University Press.
14. Tharu, Susie and K. Lalitha (ed). 1991 &1993. Women Writing in India, 2 Vols. New Delhi: Oxford University Press.
15. P.K.Rao. (2000) "Sustainable Development – Economics and Policy". Blackwell, New Delhi.
16. Radha Kumar, (1993). "The History of Doing". Kali for Women, New Delhi.
17. Ronnie Vernooy, (Ed). (2006). "Social and gender Analysis Natural Resource Management: Learnning studies and lessons from Aisa". Sage, New Delhi.
18. Swarup, Hemlata and Rajput, Pam. (2000). Gender Dimensions of Environmental and Development Debate: The Indian Experience". In Sturat S.Nagel, (ed). "India‟s Development and Public Policy". Ashgate, Burlington.
19. Venkateshwara, Sandhay. (1995). "Environment, Development and the Gender Gap" Sage Publications,NewDelhi.

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1. https://r.search.yahoo.com/_ylt=AwrxhWjc7_9geRUAlADnHgx.;_ylu=Y29sbwMEcG9zAzUEdnRpZAMEc2VjA3Ny/RV=2/RE=1627414620/RO=10/RU=https%3a%2f%2fin.sagepub.com%2fen-in%2fsas%2findian-journal-of-gender-studies%2fjournal200917/RK=2/RS=wGNZp8L5sqXOSojTzCefS4hzShA-
2. https://r.search.yahoo.com/_ylt=Awrx5kom8f9gJDAAXC_nHgx.;_ylu=Y29sbwMEcG9zAzEEdnRpZAMEc2VjA3Ny/RV=2/RE=1627414951/RO=10/RU=https%3a%2f%2fwgs.fas.harvard.edu%2fpast-thesis-topics/RK=2/RS=cjxRQNT0UmGS1Fia5z9Er8a8P.I-

PROFICIENCY ENHANCEMENT COURSE (SELF STUDY COURSE) : GENERAL STUDIES

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credits (C)
PART-V	Proficiency Enhancement Courses -Self Study Course	U21GS5SS	General Studies	-	-	-	1

Year	Semester	Completion only-
I to III year	I to VI Semester	

Preamble:

The Course is designed to provide Students basic knowledge about General Science, History and Culture of India & Tamil Nadu, Geography of India & Tamil Nadu, Indian Polity, Economy and Tamil Nadu Administration. It is designed to make the learners well versed in General knowledge, Current Events, Quantitative Aptitude and Mental Ability. Main objective of the Course is to facilitate students appearing for Competitive exams to come out with flying colours.

Course outcomes

Upon completion of the Course, the learner will be able to

S.No.	Course Outcomes	Knowledge level
CO1	recall the basic principles and laws in Science, recap the important events in history, remember the geography and culture of India and Tamil Nadu, recapitulate the events in Indian polity and Tamil Nadu administration, remember current affairs, geographical land marks, welfare schemes by the Government, scientific inventions and problems in public delivery system	K1
CO2	comprehend the basic principles and laws in Science, demonstrate the important events in history, reproduce the geography and culture of India and Tamil Nadu, the events in Indian polity and Tamil Nadu administration, Public Corruption and Lokpal & Lok ayuktha act, Transport and communication system in India, Industrial growth in T.N. ,unemployment and poverty eradication issues	K2
CO3	solve problems based on Percentage, Ratio and Proportion Time and Work, Simple interest, Compound interest, Area, Volume related problems and exhibit mathematical skills	K3
CO4	analyse and answer questions based on logical, visual and alpha numeric reasoning	K4
CO5	evaluate the constitution of India, Indian Economy, Tamil Nadu administration, social geography of India and Tamil Nadu, political system in India, pollution and its control measures	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

GENERAL STUDIES (U21GS5SS)

COURSE CONTENT

UNIT-I: General Science

i) General Scientific Laws – Mechanics - Properties of Matter, Force, Motion and Energy –Electricity and Magnetism, Light, Sound, Heat, Nuclear Physics, Electronics and Communications, solar energy

ii) Atomic structure, Elements and Compounds, Acids, Bases, Salts, Petroleum Products, Fertilisers, Pesticides, Energy resources

iii) Classification of Living Organisms, Evolution, Genetics, Physiology, Nutrition, Health and Hygiene, Diseases

iv) Environment and Ecology- Biosphere, Conservation of biodiversity- Biosphere Reserves of India, Sanctuaries and National parks, Environmental pollution, causes and control measures, alternate sources of energy

UNIT-II: General knowledge, Current Events, Quantitative Aptitude and Mental Ability

i) Latest Diary of Events - National symbols - Profile of States and Union territories Eminent persons and places in news – Sports - Books and Authors- Prominent Personalities in various spheres – Arts, Science, Literature and awards.

ii) Political parties and Political system in India – Public awareness and General administration - Welfare oriented Government Schemes and their utility, Problems in Public Delivery Systems. Public Corruption and Lokpal & Lokayuktha act

iii) Geographical landmarks - Current socio - economic issues - Latest inventions in Science and Technology. Industrial growth in India and Tamilnadu

iv) Quantitative Aptitude and Mental Ability- Simplification – Percentage - Ratio and Proportion- Time and Work - Simple interest - Compound interest - Area - Volume – Logical Reasoning -Visual Reasoning – Alpha numeric Reasoning – Number Series

UNIT-III: Geography of India & Tamil Nadu

i) Location – Physical features - Monsoon, Rainfall, Weather and Climate -Water Resources-Rivers in India - Soil, Minerals and Natural Resources - Forest and Wildlife – Agricultura pattern

ii) Transport – Communication

iii) Social Geography –Population, Census, poverty eradication and unemployment

iv) Natural calamity – Disaster Management – Environmental pollution Climate change, pandemics in history – Green energy initiatives

UNIT–IV : History and Culture of India & Tamil Nadu

i) Ancient India**:** Indus Valley Civilization - The Maurian empire- Age of the Guptas- vardhana empire- Nalanda university

ii) Medieval India : The Delhi Sultanate, Mughals and Marathas - Age of Vijayanagara and Bahmani Kingdoms –South Indian History.

iii) National : Early uprising against British rule – sepoy mutiny Renaissance Indian National Congress - Emergence of leaders- Gandhian Era

iv) Tamil Nadu : History & Culture, Socio-Political Movements

UNIT-V : Indian Polity, Economy and Tamil Nadu Administration

i)Constitution of India - Preamble Constitution - Citizenship, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy

ii) Union Executive, Union Legislature (Parliament) –State Executive, State Legislature Local Governments, Panchayat Raj- Spirit of Federalism - Centre - State Relationships- Election – Judiciary in India – Rule of Law

iii) Indian Economy – Five-year plan models – an assessment – Planning Commission and Niti Ayog - Reserve Bank of India – Fiscal Policy and Monetary Policy – Finance Commission –Goods and Services Tax

iv) Governance in India and Development-Administration in Tamil Nadu

TEXT BOOKS:

1. TNSCERT Books (Science and Social) from Std VI -X
2. Manorama year Book (Tamil)
3. Arihant General Knowledge, 2022-Manohar Pandey

SEMESTER - VI

CORE 9: DATA COMMUNICATION AND NETWORKING (U21IT609)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – III	Core-9	U21IT609	Data Communication and Networking	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**25**	**75**	**100**

Preamble

The students able to understand the basic layers and its functions in computer networks and evaluate the performance of a network. They also understand the basics of how data flows from one node to another and know about routing algorithm and protocols for various functions in the network.

Course Outcomes (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	understand the fundamentals of networks & protocols	K1,K2
CO2	apply packet switching techniques	K3
CO3	analyze and design routing algorithms	K4
CO4	evaluate the performance of a network	K5
CO5	design protocols for various functions in the network	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO Mapping (Course Articulation Matrix)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	1	2
CO2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2
CO4	2	2	1	2	1	1	2
CO5	1	2	1	1	9	2	2
Total Contribution of COs to POs	**9**	**10**	**8**	**9**	**9**	**8**	**10**
Weighted Percentage of COs Contribution to POs	**60**	**66.6**	**53**	**60**	**60**	**53**	**66.6**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE 9: DATA COMMUNICATION AND NETWORKING (U21IT609)

COURSE CONTENT

Unit-I: INTRODUCTION AND PHYSICAL LAYER (L-14+T-1 HOURS)

Networks: Network Types – Protocol Layering – TCP/IP Protocol suite – OSI Model – Physical Layer: Performance – Guided Media – Unguided media – Switching – Circuit-switched Networks – Packet Switching.

Unit-II: DATA-LINK LAYER & MEDIA ACCESS (L-14+T-1 HOURS)

Data-link layer & media access : Introduction – Link-Layer Addressing – DLC Services – Data-Link Layer Protocols – HDLC – Point to point protocol - Media Access Control: Random Access - Wired LANs: Ethernet Protocol- Wireless LANs – Introduction – IEEE 802.11, Bluetooth – Connecting Devices.

Unit-III: NETWORK LAYER (L-14+T-1 HOURS)

Network layer: Network Layer Services – Packet switching – Performance – IPV4 Addresses – Forwarding of IP Packets - Network Layer Protocols: IP, ICMP v4 – Unicast Routing Algorithms – Protocols – Multicasting Basics – IPV6 Addressing – IPV6 Protocol.

Unit-IV: TRANSPORT LAYER (L-14+T-1 HOURS)

Transport layer: Introduction – Transport Layer Protocols – Services – Port Numbers – User Datagram Protocol – Transmission Control Protocol. **Application Layer:** WWW and HTTP – FTP – Electronic mail –Telnet –Secure Shell – Domain Name System.

Unit-V: NETWORK SECURITY (L-14+T-1 HOURS)

Network security: Security Services – Message Confidentiality – Message Integrity – Message Authentication – Digital Signature – Key Management.

TEXT BOOKS :

a. Behrouz A. Forouzan, Data Communications and Networking, Fifth Edition Tata MCGraw Hill, 2013.

b. Larry L. Peterson, Bruce S. Davie, Computer Networks: A Systems Approach, Fifth Edition, Morgan Kaufmann Publishers Inc., 2012.

REFERENCE BOOKS :

1. William Stallings, Data and Computer Communications, Tenth Edition, Pearson Education, 2013.

2. Nader F. Mir, Computer and Communication Networks, Second Edition, Prentice Hall, 2014.

WEB REFERENCES:

1.https://www.citethisforme.com/topicideas/technology/data%20communication%20and%20networking%20references-39792182

2.https://www.idc-online.com/resources/technical-references/data-communications-technical-references.html

3. https://w3.cs.jmu.edu/bernstdh/web/common/references/networking.php.

CORE-10: DYNAMIC WEB PROGRAMMING (U21IT610)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core – 10	U21IT610	Dynamic Web Programming	70	05	-	4

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**25**	**75**	**100**

PREAMBLE

This course provides the basic concepts and techniques used to design, develop, and deploy web applications satisfying the requirements in terms of flexibility, availability and scalability.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	Understand different internet Technologies, web 2.0 and create a basic website using HTML and Cascading Style Sheets	K1, K2
CO2	Design a dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms	K3
CO3	Design a server side program using Servlets and JSP	K4
CO4	Design a simple web page in PHP, and to present data in XML format.	K5
CO5	Get overviews of java specific web services architecture and to enable rich client presentation using AJAX.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	1
CO2	1	2	2	1	2	2	2
CO3	2	2	2	2	1	2	2
CO4	2	2	1	2	2	1	2
CO5	2	1	1	2	1	2	1
Total Contribution of COs to Pos	**8**	**9**	**8**	**9**	**8**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**53**	**60**	**53**	**60**	**53**	**60**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE-10: DYNAMIC WEB PROGRAMMING - (U21IT610)

COURSE CONTENT

UNIT I: WEB PROGRAMMING BASICS & INSTALLATIONS WEB PUBLISHING (L – 14 HOURS + T-1 HOURS)

Websites Basics: Understanding Internet, Difference between websites and web server, Internet technologies Overview, Web 2.0: Basics, RIA Rich Internet Applications, collaborations tools. **Installations Web Publishing**: A Quick look-HTML 4.0, the web publishing Foundation, HTML basics, putting your Server to work, Server side programming, XML Basics.

UNIT II: SERVER SIDE PROGRAMMING (L–14 + T-1 HOURS)

Server side programming: Java Servlet Architecture, Servlet Life Cycle, Form GET and POST actions, Session Handling, Understanding Cookies, Installing and Configuring. Understanding Java Server Pages, JSP Standard Tag Library(JSTL), Creating HTML forms by embedding JSP code.

UNIT III: PHP LANGUAGE STRUCTURE AND MYSQL INTEGRATION (L-14 + T-1 HOURS)

PHP Language: The Building blocks of PHP, Flow Control Functions in PHP, working with Functions Working with Arrays, working with Objects, working with Strings, Dates and Time-Working with Forms, working with Cookies and User Sessions, working with Files and Directories, Working with Images. **PHP and MySQL Integration:** Understanding the Database Design, Process Learning Basic SQL Commands Using Transactions and Stored Procedures in MySQL, interacting with MySQL Using PHP.

UNIT IV: INTRODUCTION TO AJAX AND WEB SERVICES (L-14 + T-1 HOURS)

Introduction to ajax and web services: Introduction to Ajax, Ajax Client Server Architecture, XMLhttpRequest Object, Call Back Methods, Introduction to Web Services, Java web services Basics, SOAP, Creating, Publishing ,Testing and Describing a Web services(WSDL), Consuming a web service, Database Driven web service from an application.

UNIT V: BASIC PROJECTS (L-14 + T-1 HOURS)

Basic projects: Managing a Simple Mailing List, creating an Online Address Book, creating a Simple Discussion Forum, creating an Online Storefront and shopping Cart Mechanism, creating a Simple Calendar, Restricting Access to Your Applications, Logging and Monitoring Web Server Activity, Application Localization, working with XML, connecting to Web Services Apache Performance Tuning and Virtual Hosting, Setting Up a Secure Web Server, Optimizing and Tuning MySQL.

TEXT BOOKS:

1. Deitel, Deitel and Nieto, Internet and World Wide Web: How to Program, 5thEdition, 2012, Prentice Hall, ISBN-13: 978-0-13-215100-9.
2. Sam Teach Yourself PHP, MySQL and Apache All in One, 5th Edition Jan 2012, Julie Meloni.
3. Dynamic Web Publishing, Second Edition 2012, Shelly Powers, Tech Media.

REFERENCE BOOKS:

1. Stephen Wynkoop, Running A Perfect Website, Que, 2ndedition, 2001.ISBN 13: 978078970944
2. Stephen Wynkoop, Running a perfect website, QUE, 2ndEdition,2001. ISBN 13:9780789709448
3. Steve Suehring, Tim Converse and Joyce Park," PHP 6 and MySQL 6 Bible", Wiley India reprint, 2009.
4. Robert Sheldon, Geoff Moes, "Beggining MySQL", Wrox, 2005.
5. Chris Bates, Web Programming : Building Intranet applications, 3rdEdition,2009, Wiley . Publications,. ISBN 13: 9780470017753.
6. Jeffrey C. Jackson, "Web Technologies A computer Science Perspective", 2011, Pearson, ISBN. 9780133001976.

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1. http://ptgmedia.pearsoncmg.com/imprint_downloads/informit/learninglabs/9780133927597/ch01.html
2. https://www.tutorialspoint.com/internet_technologies/web_pages.htm
3. https://developer.mozilla.org/en-US/docs/Learn/Server-side
4. https://www.doteasy.com/web-hosting-articles/what-is-a-dynamic-web-page.cfm
5. https://compsciedu.com/Web-Technologies/Internet-and-Protocols/discussion/666
6. https://www.cs.uct.ac.za/mit_notes/web_programming.html
7. https://saif4u.webs.com/WEB-PROGRAMMING-NOTES.pdf

CORE-11: PROGRAMMING WITH PYTHON(U21IT611)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core – 11	U21IT611	Programming with Python	55	5	-	4

Contact hours per semester: 60
Contact hours per week: 4

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**25**	**75**	**100**

PREAMBLE

This course helps the students to learn the concept of Python Programming. To learn various concepts and techniques of solving the problems and implement those ideas using Python programs.

COURSE OUTCOMES (COS)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	learn and understand the basic concepts of Basic Concepts of Python Programming.	K1, K2
CO2	apply the concepts of an evaluating expressions, type conversion, rounding, mathematical functions, searching lists and sorting lists.	K3
CO3	analyze the concept of numeric data types, operators, drawing various shapes, if statements, operator precedence and associativity and object oriented thinking.	K4
CO4	evaluate the concept of formatting numbers and strings, loops, operator overloading, UML class diagrams and multidimensional lists.	K5
CO5	build programs using functions, lists, files, classes and objects.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	2	2
CO2	2	2	2	1	2	2	2
CO3	2	1	2	2	1	2	2
CO4	2	2	1	2	2	1	1
CO5	1	2	1	2	1	2	1
Total Contribution of COs to Pos	**9**	**9**	**8**	**9**	**8**	**9**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**60**	**53**	**60**	**53**	**60**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE-11: PROGRAMMING WITH PYTHON (U21IT611)

COURSE CONTENT

UNIT I: INTRODUCTION TO PYTHON (L – 11 + T-1 HOURS)

Introduction to Python: The History of Python, Getting Started with Python, Programming Style and Documentation, Programming Errors, Getting Started with Graphics Programming. **Elementary Programming:** Writing a Simple Program, Reading Input from the Console, Identifiers, Variables, Assignment Statements and Expressions, Numeric Data Types and Operators, Evaluating Expressions and Operator Precedence, Type Conversions and Rounding.

UNIT II: MATHEMATICAL FUNCTIONS, STRINGS AND OBJECTS

(L–11 + T-1 HOURS)

Mathematical Functions, Strings and Objects: Common Python functions, Strings and Characters, Introduction to Objects and Methods, Formatting Numbers and Strings, Drawing Various Shapes, Drawing with Colors and Fonts. **Loops:** The While Loop, The for Loop, Nested Loops, Keywords break and continue. **Sets and Tuples :** Set Operation Methods, Basic Tuples Operations.

UNIT III: SELECTION (L-11 + T-1HOURS)

Selection: Boolean Types, Values and Expressions, Generating Random Numbers, if Statements, Two-Way if-else Statements, Nested if and Multi-Way if-elif-else Statements, Logical Operators, Conditional Expressions, Operator Precedence and Associativity, Detecting the Location of an Object. **More on Strings and Special Methods:** The str Class, Operator Overloading and Special Methods.

UNIT IV: FUNCTIONS (L-11+ T-1 HOURS)

Functions: Defining a Function, Calling a Function, Functions with/without Return Values, The Scope of Variables, Default Arguments, Returning Multiple Values. **Objects and Classes:** Defining Class for Objects, UML Class Diagrams, Immutable Objects vs. Mutable Objects, Hiding Data Fields, Class Abstraction and Encapsulation, Object-Oriented Thinking.

UNIT V: LISTS (L-11 + T-1 HOURS)

Lists: List Basics, Copying Lists, Passing Lists to Functions, Returning a list from a Function, Searching Lists, Sorting Lists. **Inheritance and Polymorphism:** Superclasses and Subclasses, Overriding Methods, The object Class, Polymorphism and Dynamic Binding. **Files:** Text Input and Output, File Dialogs.

TEXT BOOKS:

1. Y.Daniel liang, Introduction to Programming Using Python, Indian edition, Pearson India Education Services Pvt. Ltd, 2021.
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist‘‘, 2nd edition, Updated for Python 3, Shroff/O‘Reilly Publishers, 2016

REFERENCE BOOKS:

1. Guido van Rossum and Fred L. Drake Jr, ―An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.
2. John V Guttag, ―Introduction to Computation and Programming Using Python‘‘, Revised and expanded Edition, MIT Press,2013.
3. Robert Sedgewick, Kevin Wayne, Robert Dondero, ―Introduction to Programming in python: An Inter-disciplinary Approach, Pearson India Education Services Pvt.Ltd., 2016.
4. Timothy A. Budd, ―Exploring Python‖, Mc-Graw Hill Education (India) Private Ltd.„ 2015.
5. Kenneth A. Lambert, ―Fundamentals of Python: First Programs‖, CENGAGE Learning, 2012.
6. Charles Dierbach, ―Introduction to Computer Science using Python: A Computational Problem-Solving Focus, Wiley India Edition, 2013.
7. Paul Gries, Jennifer Campbell and Jason Montojo, ―Practical Programming: An Introduction to Computer Science using Python 3‖, Second edition, Pragmatic Programmers, LLC, 2013.

WEB REFERENCES:

1. https://www.programmer-books.com/introducing-data-science-pdf/
2. http://greenteapress.com/wp/thinkpython/
3. https://www.cs.uky.edu/~keen/115/Haltermanpythonbook.pdf
4. http://math.ecnu.edu.cn/~lfzhou/seminar/[Joel_Grus]_Data_Science_from_Scratch_First_Princ.pdf
5. https://www.edx.org/course/python-basics-for-data-science
6. https://www.edx.org/course/analyzing-data-with-python
7. https://www.coursera.org/learn/python-plotting?specialization=data-science-python

CORE LAB- 7: DYNAMIC WEB PROGRAMMING - LAB (U21IT6P7)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 7	U21IT6P7	Dynamic web Programming -Lab	-	-	75	3

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**40**	**60**	**100**

PREAMBLE

This laboratory course provides the basic concepts and techniques used to design, develop, and deploy web applications satisfying the requirements in terms of flexibility, availability and scalability.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	Understand different internet Technologies, web 2.0 and create a basic website using HTML and Cascading Style Sheets	K1, K2
CO2	Design a dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms	K3
CO3	Design a server side program using Servlets and JSP	K4
CO4	Design a simple web page in PHP, and to present data in XML format.	K5
CO5	Get overviews of java specific web services architecture and to enable rich client presentation using AJAX.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	1	1	2
CO2	2	2	2	2	2	2	2
CO3	2	2	2	2	1	1	1
CO4	2	2	2	1	2	2	2
CO5	2	2	1	1	2	2	2
Total Contribution of COs to Pos	**10**	**10**	**9**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to Pos	**66**	**66**	**60**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE LAB- 7: DYNAMIC WEB PROGRAMMING -LAB (U21IT6P7)

LIST OF PRACTICALS

1. Write a html program for Creation of web site with forms, frames, links, tables etc.
2. Design a web site using HTML and DHTML. Use Basic text Formatting, Images etc.
3. Create a script that asks the user for a name, then greets the user with "Hello" and the user name on the page.
4. Design a dynamic web page with validation using JavaScript.
5. Create a script that prompts the user for a number and then counts from 1 to that number displaying only the odd numbers.
6. Simple applications using JSP and AJAX.
7. Using CSS for creating web sites.
8. Creating simple application to access data base using JDBC Formatting HTML with CSS.
9. Program for manipulating Databases and SQL.
10. Program using PHP database functions.
11. Write a web application that functions as a simple hand calculator, but also keeps a "paper trail" of all your previous work.
12. Install Tomcat and use JSP and link it with any of the assignments above.
13. Reading and Writing the files using .Net.
14. Write a program to implement web service for calculator application.
15. Implement RMI concept for building any remote method of your choice.

TEXT BOOKS:

1. Deitel, Deitel and Nieto, Internet and World Wide Web: How to Program, 5thEdition, 2012, Prentice Hall, ISBN-13: 978-0-13-215100-9.
2. Sam Teach Yourself PHP, MySQL and Apache All in One, 5th Edition Jan 2012, Julie Meloni.
3. Dynamic Web Publishing, Second Edition 2012, Shelly Powers, Tech Media.

REFERENCE BOOKS:

1. Stephen Wynkoop, Running A Perfect Website, Que, 2ndedition, 2001.ISBN 13: 97807897094

2. Steve Suehring, Tim Converse and Joyce Park," PHP 6 and MySQL 6 Bible", Wiley India reprint, 2009.

4. Robert Sheldon, Geoff Moes, "Beggining MySQL", Wrox, 2005.

5. Chris Bates, Web Programming : Building Intranet applications, 3rdEdition,2009, Wiley . Publications,. ISBN 13: 9780470017753.

6. Jeffrey C. Jackson, "Web Technologies A computer Science Perspective", 2011, Pearson, ISBN. 9780133001976.

WEB REFERENCES:

1. http://ptgmedia.pearsoncmg.com/imprint_downloads/informit/learninglabs/9780133927597/ch01.html
2. https://www.tutorialspoint.com/internet_technologies/web_pages.htm
3. https://developer.mozilla.org/en-US/docs/Learn/Server-side
4. https://www.doteasy.com/web-hosting-articles/what-is-a-dynamic-web-page.cfm
5. https://compsciedu.com/Web-Technologies/Internet-and-Protocols/discussion/666
6. https://www.cs.uct.ac.za/mit_notes/web_programming.html
7. https://saif4u.webs.com/WEB-PROGRAMMING-NOTES.pdf

CORE LAB- 8: PROGRAMMING WITH PYTHON LAB (U21IT6P8)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part - III	Core Lab - 8	U21IT6P8	Programming with Python Lab	-	-	75	3

Contact hours per semester: 75
Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**40**	**60**	**100**

PREAMBLE

This laboratory course will enable the students to identify, formulate all techniques of software development in the Python Programming Language and demonstrate these techniques by solving variety of problems spanning the breadth of the language.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	understand the basic concepts of python programming like math function, Strings and Lists.	K1, K2
CO2	practice the use of conditional and loop statements.	K3
CO3	analyse fibonacci numbers, reading and writing data using files.	K4
CO4	implement searching, sorting and merging algorithms.	K5
CO5	create a program for implementing the concepts of OOPS.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	1	1	2
CO2	2	2	2	2	2	2	2
CO3	2	2	2	2	1	1	1
CO4	2	2	2	1	2	2	2
CO5	2	2	1	1	2	2	2
Total Contribution of COs to Pos	**10**	**10**	**9**	**8**	**8**	**8**	**9**
Weighted Percentage of COs Contribution to Pos	**66**	**66**	**60**	**53**	**53**	**53**	**60**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

CORE LAB- 8: PROGRAMMING WITH PYTHON LAB (U21IT6P8)

LIST OF PRACTICALS

1. Write a python program that reads a Celsius degree from the console and converts it to Fahrenheit and displays the result.
2. Write a program to demonstrate different number data types in python.
3. Write a program to perform different arithmetic operations on numbers in python.
4. Write a python program to create, concatenate and print a string and accessing sub-string from given string.
5. Write a program to create, append and remove lists in python.
6. Write a python program linear search.
7. Write a python program selection sort.
8. Write a python program merge sort.
9. Write a python program to define a module to find Fibonacci numbers and import the module to another program.
10. Write a python code to demonstrate inheritance.
11. Write a python code to demonstrate method overloading.
12. Write a python code to demonstrate method overriding.
13. Write a python program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.

TEXT BOOKS:

1. Y.Daniel liang, Introduction to Programming Using Python, Indian edition, Pearson India Education Services Pvt. Ltd, 2021.
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist‘‘, 2nd edition, Updated for Python 3, Shroff/O‘Reilly Publishers, 2016.

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1. Guido van Rossum and Fred L. Drake Jr, ―An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.
2. John V Guttag, ―Introduction to Computation and Programming Using Python‘‘, Revised and expanded Edition, MIT Press,2013.
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4. Timothy A. Budd, ―Exploring Python‖, Mc-Graw Hill Education (India) Private Ltd.„ 2015.
5. Kenneth A. Lambert, ―Fundamentals of Python: First Programs‖, CENGAGE Learning, 2012.

6. Charles Dierbach, ―Introduction to Computer Science using Python: A Computational Problem-Solving Focus, Wiley India Edition, 2013.
7. Paul Gries, Jennifer Campbell and Jason Montojo, ―Practical Programming: An Introduction to Computer Science using Python 3‖, Second edition, Pragmatic Programmers, LLC, 2013.

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1. https://siiet.ac.in/wp-content/uploads/2020/02/PP-LAB-MANUAL-IV-CSE-I-SEM.pdf
2. https://miet.ac.in/assets/uploads/cs/instruction_materials/KCS-453-converted.pdf
3. https://www.programmer-books.com/introducing-data-science-pdf/
4. http://greenteapress.com/wp/thinkpython/
5. https://www.cs.uky.edu/~keen/115/Haltermanpythonbook.pdf
6. http://math.ecnu.edu.cn/~lfzhou/seminar/[Joel_Grus]_Data_Science_from_Scratch_First_Princ.pdf
7. https://www.edx.org/course/python-basics-for-data-science
8. https://www.edx.org/course/analyzing-data-with-python
9. https://www.coursera.org/learn/python-plotting?specialization=data-science-python

SKILL ENHANCEMENT II: INTRODUCTION TO DATAMINING (U21IT6S2)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
Part – IV	Skill Enhancement-II	U21IT6S2	Introduction to Data Mining	25	05	-	2

Contact hours per semester: 30
Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**-**	**50**	**50**

Preamble

This course helps the students to understand the basic knowledge and all the functionalities of data mining. And also understand the functionalities of classification, cluster analysis and web mining.

Course Outcomes (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	understand the fundamentals of Data mining.	K1,K2
CO2	apply association rule mining for handling large data set.	K3
CO3	experiment the knowledge of classification & cluster Analysis	K4
CO4	evaluate various cluster analysis methods	K5
CO5	design data cube	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO Mapping (Course Articulation Matrix)

Pos / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	2	2	2	1	2
CO2	2	2	2	2	2	2	1
CO3	2	2	2	2	2	2	2
CO4	2	2	1	2	1	1	2
CO5	1	2	1	1	9	2	1
Total Contribution of COs to POs	**9**	**10**	**8**	**9**	**9**	**8**	**8**
Weighted Percentage of COs Contribution to POs	**60**	**66.6**	**53**	**60**	**60**	**53**	**53**

(3-Strong, 2-Medium, 1-Low, 0-No Correlation)

SKILL ENHANCEMENT II: INTRODUCTION TO DATAMINING (U21IT6S2)

COURSE CONTENT

Unit-I: INTRODUCTION (L-5+T-1 HOURS)

Introduction: What is Data mining?- Data mining applications – data mining techniques – the future of data mining. Association rules mining: Introduction -Basics-task and a Naive algorithm- Apriori algorithm – improve the efficiency of the Apriori algorithm.

Unit-II: DATA WAREHOUSING (L-5+T-1 HOURS)

Data Warehousing: Introduction – Operational data stores – Data Warehouse design – Guidelines for data warehousing implementation - Data Warehouse Metadata. Online analytical processing (OLAP): Introduction – OLAP- characteristics of OLAP system – Data Cube operations.

Unit-III: CLASSIFICATION (L-5+T-1 HOURS)

Classification: Introduction – decision tree – over fitting and pruning - DT rules – Naïve Bayes method- estimation predictive accuracy of classification methods - classification software.

Unit-IV: CLUSTER ANALYSIS (L-5+T-1 HOURS)

Cluster analysis: Introduction- types of cluster analysis Methods - Partitional methods – hierarchical methods – density based methods – cluster analysis software.

Unit-V: WEB DATA MINING (L-5+T-1 HOURS)

Web data mining: Web Mining- web terminology and characteristics locality and hierarchy in the web- web content mining-web usage mining- web structure mining.

TEXT BOOKS:

1. Introduction to Data Mining with Case Studies by G.K.Gupta, PHI 3rd Edition, 2015.
2. Data Mining (Concepts and Techniques) Second Edition 2006, Jiawei Han and Michelin Kamber, Morgan Kaufmann Publishers.

REFERENCE BOOKS :

1.Data Mining (Next Generation Challenges and Future Directions) Author : Karguta, Joshi, Sivakumar & Yesha Publishers : Printice Hall of India (2007)

2. Data Warehousing, Data mining & OLAP (Edition 2004) Author: Alex Benson, Stephen V. Smith Publishers: Tata McGraw – Hill.

WEB REFERENCES:

1. https://www.javatpoint.com/data-mining
2. https://www.oracle.com/in/database/what-is-a-data-warehouse/
3. https://www.qualtrics.com/au/experience-management/research/cluster-analysis/

OPEN ELECTIVE- FUNDAMENTALS OF COMPUTER AND NETWORKING(U21IT6OE)

Category	Course Type	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
PART IV	Open Elective	U21IT6OE	Fundamentals of Computer and Networking	-	-	__	3

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**Sixth**	**-**	**100**	**100**

PREAMBLE

The course is aim at imparting a basic level appreciation programme for the common man. After completing the course, the incumbent is able to the use the computer for basic purposes of preparing his personnel/business letters, viewing information on Internet (the web), sending mails, using internet banking services etc.

COURSE OUTCOMES (COs)

On successful completion of the course, students will be able to

S#	Course Outcome	Knowledge Level (RBT)
CO1	Understand the fundamentals of Computer.	K1,K2
CO2	Learning the Concept of MS Excel	K3
CO3	Apply different idea in MS Word.	K4
CO4	Knowledge on PPT Presentation.	K5
CO5	Know the concept of Internet and Networking.	K6

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	**2**	**1**	**1**	**1**	**2**	**1**	**2**
CO2	**2**	**2**	**1**	**1**	**1**	**1**	**1**
CO3	**-**	**1**	**1**	**1**	**1**	**1**	**1**
CO4	**1**	**1**	**1**	**1**	**1**	**1**	**1**
CO5	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Total Contribution of COs to Pos	**6**	**6**	**5**	**5**	**6**	**4**	**6**
Weighted Percentage of COs Contribution to POs	**40**	**40**	**33.33**	**33.3**	**40**	**33.3**	**40**

(3-Strong, 2-Medium, 1-Low)

FUNDAMENTALS OF COMPUTER AND NETWORKING– (U21IT6OE)

COURSE CONTENT

UNIT-I: OVERVIEW OF COMPUTER

What is Computer, Basic Applications of Computer, Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, **Concepts of Hardware and Software:** Concept of Computing, Data and Information, Applications of IECT, connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

UNIT-II: MICROSOFT EXCEL

Microsoft Excel: Introduction to Spreadsheets – Use of Spreadsheet – Spreadsheet Basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel – Excel Work Environment – Changing size of a Work book and Excel Window – Cell and Cell Address – Standard Toolbar – Formatting toolbar – the Formula bar – Status bar – Components of an Excel Workbook. **Working in Excel:** Entering data in cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address – Defining functions simple Graphs

UNIT-III: MS WORD

Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.

UNIT-IV: POWERE POINT

Making Small Presentation: Basics of presentation software; Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts.

UNIT-V: INTERNET AND NETWORKING

Introduction to Internet: WWW and Web Browsers: Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, World Wide Web; Web Browsing software, Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website

TEXT BOOKS:

1. Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications 2016.
2. VIKAS GUPTA, “Comdex Computer Course Kit (XP Edition)”, Dec 2012, Dreamtech press, New Delhi.

REFERENCE BOOKS:

1. Introduction to Information Technology ITL Education Solutions Limited, Pearson Education 2005.
2. Fundamentals of Information Technology by Alexis Leon & Mathews Leon Vikas Publication – New Delhi 2009.
3. Stephen L. Nelson, "The Complete Reference office 2000" Tata McGraw – Hill Publishing Company limited 1999, New Delhi.
4. N.Krishnan, "Window and MS Office 2000 with Database Concepts" Scitech publications (India) Private Ltd 2000, Chennai.

WEB REFERENCES:

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2. https://docs.microsoft.com/en-us/learn/modules/network-fundamentals/
3. https://www.udemy.com/course/computer-networking-fundamentals-m/
4. https://www.tutorialspoint.com/computer_concepts/computer_concepts_basics_of_computer_networks.htm
5. https://www.tutorialspoint.com/computer_concepts/computer_concepts_basics_of_computer_networks.htm

G.VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS)
KOVILPATTI – 628 502

Distribution of Marks and Question Paper Patternfor all UG Programmes

a)Distribution of Marks

Category	Total Marks	Distribution of Marks		Passing Minimum for (ESE)	Overall Passing Minimum
		CIA*	ESE**		
Theory (Both CIA and ESE)	100	25	75	30	40
Ability & Skill Enhancement (Only ESE)	50	-	50	20	20
Foundation Course & Employability Enhancement Course (Only CIA)	50	50	-	-	20
Extra Departmental Course (SSC)	100	-	100	-	40
Institutional Training	100	-	100	40	40
Comprehension in core subjects (Online Exam)	50	-	50	20	20
Practical & Project	100	40	60	24	40

b) Question Pattern:

Bloom's Category levels are followed in setting the question papers

Remember Level - K1
Understand Level - K2
Apply Level - K3
Analyze Level - K4
Evaluate Level - K5
Create Level - K6

Question Pattern for Comprehension in Core Courses(ESE – 1-houronline Examination)

This course is one of the compulsory courses. This course is offered to facilitate the students to have comprehensive knowledge in the basic principles of the field of study. The student would be given 1 hour with randomly selected 50 questions for a maximum 50 marks. The passing minimum is 40%.i.e. 20 marks out of 50.(No Negative scores for wrong answers).

Course	No of Questions	Marks	Total Marks
Comprehension in Core Courses – Online Examination	50	50 x 1 = 50 ALL Questions Carry EQUAL Marks	50

Ability Enhancement & Skill Enhancement for UG Program

(Only ESE- 2 Hours Exam)

Section	Marks		Total Marks
Section A	4 x 5 = 20 Four out of six (open choice) ALL Questions Carry EQUAL Marks	250 words (Paragraph Answer)	50
Section B	3 x 10 = 30 Three out of Five (Open choice) ALL Questions Carry EQUAL Marks	500 words (Essay Type)	

Employability Enhancement &Foundation Course for UG Program (100% CIA paper)

Section	Marks	Total Marks
Section A	2 x 1 = 2 (No choice) ALL Questions Carry EQUAL Marks	20
Section B	3 x 4 = 12 (Internal choice – Either/or) ALL Questions Carry EQUAL Marks	
Section C	1 x 6 = 6(Internal choice – Either/or) ALL Questions Carry EQUAL Marks	

Three Test (3 x 20) - 60 Marks

(All three Tests Compulsory)

Other Assessment Tools (2x20) – 40 Marks

a) Assignments
b) Quiz / Student Presentation

Total - 100 Marks (Reduced to 50)

- **The minimum mark to get a pass is 20 Marks.**
- **In case a candidate has not appeared for internal test I, II, re-test may be conducted with the approval of the HoD& Principal on reasonable grounds.**
- **If a candidate fails, He/She can re-appear for the same in the subsequent semesters.**

Open Elective Courses (SSC) for UG Program(ESE – 3 hours Examination) – Non CGPA course

A student shall take up one OPEN ELECTIVE course offered by other departments to complete the programme. The score obtained in this course will not be accounted for CGPA calculation. The enrolment is based on first come first served basis depending upon the available strength.

Section	Marks	Total Marks
Section A	10 x 10 = 100 Ten out of Fifteen (open choice) ALL Questions Carry EQUAL Marks	100

CIA Question Paper Pattern for UG Program

Section	Marks	Total Marks
Section A	2 x 1 = 2 (No choice) ALL Questions Carry EQUAL Marks	20
Section B	3 x 4 = 12 (Internal choice – Either/or) ALL Questions Carry EQUAL Marks	
Section C	1 x 6 = 6(Internal choice – Either/or) ALL Questions Carry EQUAL Marks	

End Semester Examination & Model Exam Question Paper Pattern for UG Program

Section	Marks	Total Marks
Section A	10 x 1 = 10 (No choice) ALL Questions Carry EQUAL Marks	75
Section B	5 x 5 = 25 (Internal choice – Either/or) ALL Questions Carry EQUAL Marks	
Section C	5 x 8 = 40 (Internal choice – Either/or) ALL Questions Carry EQUAL Marks	

Extension Activities & Co-Curricular Activities:

The first year UG students shall enroll themselves for NSS, NCC, YRC, Physical Education, Consumer Club, Youth Welfare, Nature Club, Yoga Club & Electoral Literacy Club. Participation in any one of these activities during the first four semesters is mandatory. A report, regarding the successful completion of the activity, issued by the faculty incharge of these activities has to be submitted to the Controller of Examinations at the end of the sixth semester.

Procedure of Evaluation:

Sl.No	**Criteria for Evaluation**	**Marks**
1.	**NSS, NCC**	
	Attendance	10
	Participation in a minimum number of programmes	40
	Involvement	30
	Participation in the Camp	20
	Total	100
2.	**YRC, Other Clubs**	
	Attendance	10
	Participation in a minimum number of programmes	60
	Involvement	30
	Total	100
3.	**Sports**	
	Attendance	10
	Participation in Sports activated at College Level	20
	Participation in Sports activities at State/University Level	20
	Test Conducted	50
	Total	**100**

CONTINUOUS INTERNAL ASSESSMENT(CIA):

Breakup of CIA Marks for Theory Courses for UG

Components	**Tests**			**Assignment**	**Quiz / Presentation**	**Total**
	I	**II**	**III (Model)**			
UG Theory	20	20	75 (Reduced to 20)	2	3	25

INTERNALTESTS:

Two tests for Continuous Assessment will be conducted on pre- determineddates that is 1st test (1 hour) commencing on the 35th day from the date of reopening,2nd test (1 hour) on the 60th day. The Model Exam (3 hours) will be conducted after completing 80working days.

Absentees for Internal Tests:

Appearance of CIA is mandatory to take up the ESE. However, if a student is not able to write the Internal Tests because of his/her participation in an important event related to NCC, NSS or Games/Sports representing the College/University/ any other valid reason, the student has to get the prior permission of the Principal through the proper channel and submit the same to the Office of the Controller of Examinations. Retest request should be submitted to the COE's Office within **7 days after the completion of I& II Internal test. Applications submitted after the deadline will not be considered for retest. There is no retest for Test III (Model Exam).**

Question paper pattern forPractical

Group Project & Viva Voce:

Each group (UG) comprising of 5 students will be allotted to a staff coordinator. A specific problem will be assigned to the students or they will be asked to choose a problem /area of their interest. The topic /area of work will be finalized at the end of the IV Semester (UG), allowing scope for the students to gather relevant literature during the vacation.The research work can be carried at the college or any other organization approved by the staff coordinator and the HoD.

Institutional/Industrial Training/Mini Project:

A student shall visit an Institution / Organization / Industry and learn its operations according to the nature of His/her discipline of study after obtaining a formal approval from the Department for a period of 15 days during His/ Her summer vacation between IV and V semester for UG Programs. The students who could not undergo the Institutional training may opt for Mini/Minor project, complete its components under the guidance of the faculty and submit a report for the work done as per the prescribed format. The students must maintain a work diary and prepare a report of thetraining/minor project undergone and submit the same to the HoD. On a stipulated date, therewill be a viva voce with internal examiners at the end of the semester V.

Components for Project/Internship/Industrial Training:

a) CIA Evaluation

c) Regularity 10 Marks

ii) Review/Presentation 30 Marks

Total 40 Marks

b) ESE Evaluation

i) Work diary - 10 Marks

ii) Report - 30 Marks

iii) Viva voce - 20 Marks

Total - 60 Marks

Components for Practical:

c) CIA Evaluation

i) Lab Performance- 10 Marks (Practical skill 5 Marks + Interactions 5 Marks)

ii) Regularity in

Record Submission- 5 Marks (Department to have the norms)

ii) Model Exam - 25 Marks

Total 40 Marks

b) ESE Evaluation

i) Record - 10 Marks

ii) Experiment - 50 Marks

Total - 60 Marks

SUBMISSION OF RECORD NOTE BOOKS FOR PRACTICAL EXAMINATIONS

Submission of bonafide record note books is mandatory to appear for the practical examination. If a candidate is unable to submit the record note book on valid grounds, she may be permitted to appear for the practical examinations, provided the head of the department certifies that the candidate has performed the experiments prescribed for the course and she will be awarded zero (0) marks for record note book.

GRADING SYSTEM

Based on the guidelines of Manonmaniam Sundaranar University on grading system the Following Grading System for the students admitted from 2020 – 2021 & onwards.

Conversion of Marks to Grade Points and Letter Grade:

RANGE OF MARKS	GRADE POINT	LETTER GRADE	DESCRIPTION
90 – 100	9.0 – 10.0	O	Outstanding
80 – 89	8.0 – 8.9	D+	Excellent
75 – 79	7.5 – 7.9	D	Distinction
70 – 74	7.0 – 7.4	A+	Very Good
60 – 69	6.0 – 6.9	A	Good
50 – 59	5.0 – 5.9	B	Average
40-49#	4.0-4.9	C	Satisfactory
00-39	0.0	U	Reappear
Absent	0.0	AAA	Absent

Classifications:

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5 – 10.0	O+	First Class - Exemplary
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
4.5 and above but below 5.0	C+#	Third Class
4.0 and above but below 4.5	C#	
0.0 and above but below 4.0	U	Re - appear

Applicable only to U.G. Programme

* Applicable for the students who have passed the Part:IIIexaminationsinFIRSTAPPEARANCEwithinthestudy period ofthe respective semester.

- Cumulative Grade Point Average (CGPA)and final classifications are to be made for the programme
- Part –IIIcomponents alone are considered for CGPA
- Part-I, Part-II, Part-IV&Part –Vare notto be considered for finding the CGPA orforthe classification ofPart –III

- The maximummarksper course(subject)areto be fixed at 100. (if it is less or more than 100 it should be converted to 100)

- Grade point average – For a semester (GPA): = ∑CGP / C

Where C = Credits earned for the course in any semester
G= Grade Point obtained for the course in any semester

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a semester}}$$

- Cumulative Grade Point Average – For the entire programme : (CGPA) is calculated by using the formula:

$$CGPA = \frac{\sum CGP}{\sum C}$$ Where C = Credit Point GP=Grade Point

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of entire programme}}$$

- CGPA is given only in Consolidated mark/Grade sheet

Ranking:

- Candidates who have passed all the courses (subjects) or completed all the components prescribed for the programme within the period of study are only eligible for Ranking.
- Ranking is based on the marks scored in Part – III subjects only.
- Candidates passing the Part – III subjects in First Attempt within the study period of respective semesters are only eligible for ranking.
- In case of Reappearance, the first appearance mark is only considered for ranking,
- Candidates absent for the courses (subjects) prescribed in Part – III with high marks in the subsequent appearance will not be considered for Ranking.

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS)

RE-ACCREDITED BY NAAC WITH 'A' GRADE |DBT STAR COLLEGE SCHEME
KOVILPATTI – 628 502.

DEPARTMENT OF INFORMATION TECHNOLOGY

PANEL OF EXAMINERS FOR PRACTICAL & CENTRAL VALUATION

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KOVILPATTI – 628 502.

DEPARTMENT OF INFORMATION TECHNOLOGY

PANEL OF EXAMINERS FOR QUESTION PAPER SETTING

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