

B.Sc INFORMATION TECHNOLOGY

Course Structure and Syllabus

(For the candidates admitted from the academic year 2020-2021 onwards)

CHOICE BASED CREDIT SYSTEM (CBCS)



THANTHAI HANS ROEVER COLLEGE (AUTONOMOUS)

(Nationally Re-Accredited by NAAC with B⁺⁺)

(Affiliated to Bharathidasan University, Tiruchirappalli)

ELAMBALUR, PERAMBALUR – 621 220



VISION:

- To be a Centre of excellence in education and research in the frontier areas of Computer Science.

MISSION:

- To facilitate quality transformative education in Computer Science
- To promote quality research and innovation in technology for meeting global challenges
- To transform students to competent professionals to cater to the needs of the society.

PROGRAMME OUTCOMES (POs):

Undergraduate Programmes

Upon completion of the programme, the undergraduate will be able to

- Acquire knowledge, understand concepts and apply new ideas which enable them to be employable or self employed.
- Demonstrate motivation in advancing to higher learning programmes.
- Engage in socially responsible behaviour and have value added education.
- Have exposure to technical proficiency, analytical capability, soft skills and life skills development.
- Develop broad understanding in the basic concepts of Languages/ Commerce/ Management Studies/ Physical Sciences/ Computing Sciences/ Biological Sciences/ Life Sciences.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

Our graduates of B.Sc(IT) students will have

1. Acquire the knowledge of basic computing and IT concepts that is used to adopt perfectly with the net world.
2. Learn and develop the programming and technical skills to meets the requirements of the IT based industries.
3. Analyze the problems and provide solutions in IT, which increase the critical thinking.
4. Adopt the concept of IT to apply and implement real time applications for the society enhancement and that increase the entrepreneurship skills.
5. Score the comprehensive knowledge of system concept for higher studies and active participation in research.

Thanthai Hans Roever College (Autonomous), Elambalur, Perambalur - 621 220
 Bachelor of Information Technology - UG Course Structure under CBCS
 (For the candidates admitted from the academic year 2020-2021 onwards)

Semester	Part	Course Code	Title of the Course	Ins. Hours/ Weeks	Credits	Exam Hours	CIA (Max)	ESE (Max)	Total (Max)
1	I	20UT1	Tamil - I (Ikkala Ilakkiyam - Kavithai, Sirukathai, Urainadai, Ilakkiya Varalaru)	6	3	3	25	75	100
1	II	20UE1	English-I (Communicative English-I)	6	3	3	25	75	100
1	III	20UIT1CC1	Principles of Information Technology	5	4	3	25	75	100
1	III	20UIT1CP1	MS Office Lab	4	3	3	40	60	100
1	III	20UMA1AC1	Mathematics-I (Numerical Methods and Statistics)	5	3	3	25	75	100
1	III	20UIT1PE1	Professional English for Physical Sciences – I	2	2	3	25	75	100
1	IV	20UVE	Value Education	2	2	3	25	75	100
Total				30	20	-	-	-	700
2	I	20UT2	Tamil - II (Idaikkala Ilakkiyam - Bakthi, Puthinam, Ilakkiya Varalaru)	6	3	3	25	75	100
2	II	20UE2	English-II (Communicative English-II)	6	3	3	25	75	100
2	III	20UIT2CC2	Programming in C	5	4	3	25	75	100
2	III	20UIT2CP2	C Programming Lab	4	3	3	40	60	100
2	III	20UMA2AC2	Mathematics-II (Operation Research)	5	3	3	25	75	100
2	III	20UIT2PE2	Professional English for Physical Sciences –II	2	2	3	25	75	100
2	IV	20UES	Environmental Studies	2	2	3	25	75	100
Total				30	20	-	-	-	700
3	I	20UT3	Tamil-III (Kappiya Ilakkiyam, Nadagam, Ilakkiya Varalaru)	6	3	3	25	75	100
3	II	20UE3	English-III (Language Through Literature and Communicative Skills – I)	6	3	3	25	75	100
3	III	20UIT3CC3	Programming in C++	5	4	3	25	75	100
3	III	20UIT3CP3	C++ Programming Lab	4	3	3	40	60	100
3	III	20UCM3AC3:1	Principles of Management	4	3	3	25	75	100

3	III	20UIT3AC3:2	Programming in Python	3	3	3	25	75	100
3	IV		NME1*	2	2	3	25	75	100
Total				30	21	-	-	-	700
4	I	20UT4	Tamil-IV (Pazhanthamizh Ilakkiyam, Ilakkiya Varalaru & Pothukkatturai)	6	3	3	25	75	100
4	II	20UE4	English-IV (Language Through Literature and Communicative Skills – II)	6	3	3	25	75	100
4	III	20UIT4CC4	Programming in Java	4	4	3	25	75	100
4	III	20UIT4CP4	Java Programming Lab	3	3	3	40	60	100
4	III	20UCM4AC4:1	Organizational Behavior	4	3	3	25	75	100
4	III	20UIT4AP1	Python Programming Lab	3	3	3	25	75	100
4	IV		NME2*	2	2	3	25	75	100
4	IV	20UIT4SBE1	Quantitative Aptitude	2	2	3	25	75	100
Total				30	23	-	-	-	800
5	III	20UIT5CC5	Computer Networks	5	5	3	25	75	100
5	III	20UIT5CC6	Operating Systems	5	5	3	25	75	100
5	III	20UIT5CC7	Web Technology	5	5	3	25	75	100
5	III	20UIT5CP5	Web Technology Lab	4	4	3	40	60	100
5	III	20UIT5MBE1:1/ 20UIT5MBE1:2/ 20UIT5MBE1:3	Digital Computer Fundamentals/ Internet Programming/ Data Structure and Algorithms	5	4	3	25	75	100
5	IV	20UIT5SBE2	Android Programming	2	2	3	25	75	100
5	IV	20UIT5SBE3	Distributed Programming	2	2	3	25	75	100
5	IV	20USSD	Soft Skill Development	2	2	3	25	75	100
Total				30	29	-	-	-	800
6	III	20UIT6CC8	Relational Database Management Systems	6	5	3	25	75	100
6	III	20UIT6CC9	Internet of Things	6	5	3	25	75	100
6	III	20UIT6CP6	SQL & PLSQL Lab	5	5	3	40	60	100
6	III	20UIT6MBE2:1/ 20UIT6MBE2:2/ 20UIT6MBE2:3	Software Engineering/ Linux and Shell Programming/ Multimedia Systems	6	5	3	25	75	100
6	III	20UIT6PW/ 20UIT6MBE3:1/ 20UIT6MBE3:2	Mini Project(Students to do it in their respective Colleges)/ Shell Programming Lab/ Computer Graphics &	6	5	3	40	60	100

			Animation Lab						
6	V	20UGS	Gender Studies	1	1	3	25	75	100
6	V	*****	Extension Activities	-	1	-	-	-	-
Total				30	27	-	-	-	600
Grand Total				180	140				4300

List of Allied Courses

Allied Course I
Mathematical

Allied Course II
Commerce

Paper Details:

Tamil Paper-Part I	- 4
English Paper-Part II	- 4
Core Course Paper	- 9
Core Course Practical	- 6
Allied Course Paper	- 5
Allied Course Practical	- 1
Non-Major Elective	- 2
Skill Based Elective	- 3
Major Based Elective	- 3
Environmental Studies	- 1
Value Education	- 1
Professional English	- 2
Soft Skill Development	- 1
Gender Studies	- 1
Extension Activities	- 1 (Credit Only)

- For those who studied Tamil up to 10th +2 (Regular Stream)
- Syllabus for other Languages should be on par with Tamil at degree level
- those who studied Tamil up to 10th +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV
- Extension Activities shall be outside instruction hours

Non Major Elective I & II – for those who studied Tamil under Part- I

i) Basic Tamil I & II for other language students

ii) Special Tamil I & II for those who studied Tamil up to 10th or +2 but opt for other languages in degree programme

Note:

	Internal Marks	External Marks
1. Theory	25	75
2. Practical	40	60
3. Separate passing minimum is prescribed for Internal and External marks		

NME Papers offered to Other Department

20UIT3NME1 – Office Automation (Theory)

20UIT4NME2 – Desk Top Publishing (Theory)

FOR THEORY

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]

The passing minimum for Semester Examinations shall be 40% out of 75 marks [i.e. 30 marks]

FOR PRACTICAL

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]

The passing minimum for Semester Examinations shall be 40% out of 60 marks [i.e. 24 marks]

SEMESTER-I

Course Code: 20UIT1CC1

Instruction Hours: 5

Credits: 4

Exam Hours: 3

Internal Marks: 25

External Marks: 75

CORE COURSE I - PRINCIPLES OF INFORMATION TECHNOLOGY

Course Outcomes (COs):

- Students will develop computer literacy skills to adapt to emerging technologies used in the global marketplace.
- Help students implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment.
- Help students enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.
- Install technical hardware and software including network, database and security components.
- Analyze and select application and operating system settings to create an optimal user environment.

UNIT I

Introduction to Computer – Classification of Digital Computer System – Computer Architecture – Memory Units – Auxiliary Storage Devices – Input and Output Devices

UNIT II

Introduction to Computer Software – Operating System – Programming Languages – General Software Features and trends

UNIT III

Database Management Systems – Data Processing – Introduction to Database Management System – database design.

UNIT IV

Introduction to Telecommunication – Networking – Communication System – Distributed System – Internet – Intranet

UNIT V

Multimedia tools – Virtual Reality – E-Commerce – Data warehousing – Data Mining – Applications: Geographical Information System – Computer in Business, Industry, Home, Education and Training.

Text Book(s):

1. Alexis Leon. Mathews Leon, Fundamentals of Information Technology, Leon Tech World.

Reference Book(s):

1. Henry C. Lucas, Jr., "Information Technology for Management", McGraw Hill (Part – III)
2. Williams, Sawyer, Hutchinson, "Using Information Technology", McGraw Hill.
3. "Information Technology - The Breaking Wave", Dennis P. Curtin, Kim Foley, Kunal Sen and Cathleen Morin, Tata-McGraw Hill Publications, 2005

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
I	20UIT1CC1	PRINCIPLES OF INFORMATION TECHNOLOGY					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓		✓	✓		
CO4	✓	✓		✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-I

Course Code: 20UIT1CP1
Instruction Hours: 4
Credits: 3

Exam Hours: 3
Internal Marks: 40
External Marks: 60

CORE COURSE PRACTICAL I – MS OFFICE LAB

Course Outcomes (COs):

By learning the course, the students will be able

- To perform documentation
- To perform accounting operations
- To analyses the data using graph for decision making.
- To perform presentation for effective teaching
- Enhance the ability of information management using system.

MS-WORD:

1. **Text Manipulation:** Changing the Font Size and Type, Aligning, Justifying, Underlining, Indenting the Text
[a] Prepare a Bio-Data [b] Prepare a Letter
2. **Formatting:** Bullets and Numbering in Paragraphs, Footer and Header, Finding and Replacing Text, Spell Check: [a] Prepare a Document
b] Prepare a Document in Newspaper Format
3. **Tables and Manipulations** – Table Creation, Insertion and Deletion of Rows and Columns, Usage of Auto Format:
[a] Prepare a Mark Statement
[b] Prepare a Calendar and demonstrate the Auto Format Feature.
4. **Picture Insertion and Alignment:**[a] Prepare a Greeting Card
[b] Prepare a Handout
5. **Creating Documents using Templates:**[a] Prepare a Letter
6. **Mail Merge:** [a] Prepare a Business Letter
[b] Prepare an Invitation
7. **Macros:** Prepare a Recoding for Document.

MS-EXCEL:

1. Usage of Formulae and Built-in Functions.
2. Editing Cells, using Commands and Functions.
3. Moving and Copying, Inserting and Deleting Rows and Columns.
4. Mark List Preparation.
5. Pay Bill Preparation.
6. Create graphs using Macros.

MS-POWERPOINT:

1. A Presentation that shows five different Greeting Cards with Pictures.
2. Prepare Slides that helps you to teach about “Computer Networks”.
3. A Presentation with different Animation Effects.
4. Prepare Slides that gives a Presentation about “Computers” using Macros.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
I	20UIT1CP1	MS OFFICE LAB					4	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓		✓	✓	✓	✓		✓	✓	✓	
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of matches (✓) = 36, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER - II

Course Code: 20UIT2CC2
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE II – PROGRAMMING IN C

Course Outcomes (COs):

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

- Demonstrate an understanding of computer programming language concepts.
- Able to define data types and use them in simple data processing applications
- Able to use the concept of array of structures. Student must be able to define union and enumeration user defined data types.
- Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
- Develop confidence for self-education and ability for life-long learning needed for Computer language.

UNIT I

C fundamentals Character set - Identifier and keywords - data types - constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and logical, Assignment and Conditional Operators - Library functions.

UNIT II

Data input output functions - Simple C programs - Flow of control - if, if-else, while, do-while, for loop, Nested control structures - Switch, break and continue, go to statements - Comma operator.

UNIT III

Functions - Definition - Proto-types - Passing arguments - Recursions. Storage Classes - Automatic, External, Static, Register Variables - Multi-file programs.

UNIT IV

Arrays - Defining and Processing - Passing Arrays to functions - Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures - Unions - Bit wise operations.

UNIT V

Pointers - Declarations - Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers - Files: Creating Processing, Opening and Closing a data file.

Text Book(s):

1. E.Balagurusamy, "Programming in ANSI C", Fifth Edition, Tata McGraw Hill.

Reference Book(s):

1. B.W. Kernighan and D M.Ritchie, "The C Programming Language", 2nd Edition, PHI, 1988.
2. H. Schildt, "C: The Complete Reference", 4th Edition. TMH Edition, 2000.
3. Gottfried B.S, "Programming with C", Second Edition, TMH Pub. Co. Ltd., New Delhi 1996.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
II	20UIT2CC2	PROGRAMMING IN C					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓		✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓		✓	✓	✓	
Number of matches (✓) = 38, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER II

Course Code: 20UIT2CP2
Instruction Hours: 4
Credits: 3

Exam Hours: 3
Internal Marks: 40
External Marks: 60

CORE COURSE PRACTICAL II – C PROGRAMMING LAB

Course Outcomes (COs):

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

- Read, understand and trace the execution of programs written in C language.
- Write the C code for a given algorithms.
- Implement programs with pointers and arrays.
- Using pointer to perform arithmetic operation.
- Write programs that perform operations using derived data types.

I Summation of Series

1. Sin(x),
2. Cos(x),
3. Exp(x) (Comparison with built in functions)

II String Manipulation

1. Counting the number of vowels, consonants, words, white spaces in a line of text and array of lines.
2. Reverse a string and check for palindrome.
3. Sub string detection, count and removal.
4. Finding and replacing substrings.

III Recursion

1. nPr, nCr
2. GCD of two numbers
3. Fibonacci sequence
4. Maximum & Minimum

IV Matrix Manipulation

1. Addition and Subtraction
2. Multiplication
3. Transpose, and trace of a matrix
4. Determinant of a Matrix

V Sorting and Searching

1. Insertion Sort
2. Bubble Sort
3. Linear Search

4. Binary Search

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
II	20UIT2CP2	C PROGRAMMING LAB					4	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓		✓		✓	✓	✓			
CO4	✓	✓		✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Number of matches (✓) = 36, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – III

Course Code: 20UIT3CC3
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE III -PROGRAMMING IN C++

Course Outcomes (COs):

After completion of this course, student will be able to

- Identify importance of object oriented programming and difference between structured oriented and object oriented programming features.
- Able to make use of objects and classes for developing programs.
- Able to use various object oriented concepts to solve different problems.
- To learn how inheritance and virtual functions implement dynamic binding with polymorphism.
- Understand advanced features of C++ specifically stream I/O, templates and operator overloading.

UNIT I

Principles of Object- Oriented Programming – Beginning with C++ - Tokens, Expressions and Control Structures – Functions in C++.

UNIT II

Classes and Objects – Constructors and Destructors – New Operator – Operator Overloading and Type Conversions.

UNIT III

Inheritance: Extending Classes – Pointers- Virtual Functions and Polymorphism.

UNIT IV

Managing Console I/O Operations – Working with Files – Templates – Exception Handling.

UNIT V

Standard Template Library – Manipulating Strings – Object Oriented Systems Development.

Text Book(s):

1. Balagursamy E, Object Oriented Programming with C++, Tata McGraw Hill Publications, Sixth Edition, 2013

Reference Book(s):

1. Ashok Kamthane, Programming in C++, Pearson Education, 2013.
2. Steve Oualline, “Practical C++ programming”, O’Reilly/Shroff publishers & distributors.

3. “C++ primer”, Stanley B. Lippman, Josee Lajoie, Barbara E. Moo. – 5th ed...

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
III	20UIT3CC3	PROGRAMMING IN C++					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓	✓	✓	✓	✓			
CO2	✓	✓		✓		✓	✓			✓	
CO3	✓			✓	✓	✓	✓	✓	✓	✓	
CO4	✓	✓	✓	✓		✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Number of matches (✓) = 40, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER III

Course Code: 20UIT3CP3
Instruction Hours: 4
Credits: 3

Exam Hours: 3
Internal Marks: 40
External Marks: 60

CORE PRACTICAL III- C++ PROGRAMMING LAB

Course Outcomes (COs):

After successfully completed course, students will be able to:

- To implement various concepts related to language.
- Identify importance of object oriented programming and difference between structured oriented and object oriented programming features.
- Able to make use of objects and classes for developing programs.
- Able to use various object oriented concepts to solve different problems.
- Ability to develop computing based applications.

1. Classes

Write A Program Using A Class To Represent A Bank Account With Data Members – Name Of Depositor, Account Number, Type Of Account And Balance And Member Functions – Deposit Amount – Withdrawal Amount. Show Name And Balance. Check The Program With Own Data.

2. Constructor & Destructor

Write A Program To Read An Integer And Find The Sum Of All The Digits Until It Reduces To A Single Digit Using Constructor, Destructor And Default Constructor.

3. Default & Reference Argument

Write A Program Using Function Overloading To Read Two Matrices Of Different Data Types Such As Integers And Floating Point Numbers. Find Out The Sum Of The Above Matrices Separately And Display The Total Sum Of These Arrays Individually.

4. Operator Overloading

- A. Addition Of Two Complex Numbers.
- B. Matrix Multiplication

5. Inheritance

Prepare Pay Roll Of An Employee Using Inheritance.

6. Pointers

- A. Write A Program To Find The Number Of Vowels In A Given Text
- B. Write A Program To Check For Palindrome

7. Files

Prepare Students Mark List In A File With Student Number, Mark In Four Subjects And Mark Total. Write A Program To Arrange These Records In The Ascending Order Of Mark Total And Write Them In The Same File Overwriting The Earlier Records.

8. Exception Handling

Prepare Electricity Bill For Customers Generating And Handling Any Two Exceptions

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
III	20UIT3CP3	C++ PROGRAMMING LAB					4	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓				✓	✓	✓	✓		
CO2	✓	✓	✓	✓		✓	✓	✓			
CO3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓		✓		✓	✓	✓	✓	✓	
Number of matches (✓) = 41, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER - III

Course Code: 20UIT3AC3:2
Instruction Hours: 3
Credits: 3

Exam Hours: 3
Internal Marks: 25
External Marks: 75

ALLIED COURSE IV - PROGRAMMING IN PYTHON

Course Outcomes (COs):

- Understand why Python is a useful scripting language for developers.
- Understand the basic programming language concepts in the Python.
- Demonstrate the use of functions, lists, tuples and dictionaries and write control statements in Python.
- Understand the design of object-oriented programs with Python classes.
- Identify the tools support for Python program development environment.

UNIT-I

Introduction to Python - Why Python - Installing in various Operating Systems - Executing Python Programs - Basic Programming concepts - Variables, expressions and statements - Input/Output – Operators.

UNIT-II

Conditions - Functions - Arguments - Return values - Iteration - Loops - Strings -Data Structures - Lists - Dictionaries - Tuples - Sequences - Exception Handling.

UNIT-III

File Handling - Modules - Regular Expressions - Text handling - Object Oriented Programming - Classes - Objects - Inheritance - Overloading - Polymorphism Interacting with Databases - Introduction to MySQL - interacting with MySQL - Building a address book with add/edit/delete/search features.

UNIT-IV

Introduction to Graphics programming - Introduction to GTK - PyGTK - Developing GUI applications using pyGTK - Scientific Programming using NumPy / SciPy - Image Processing - Processing multimedia files -Network Programming, Web services using SOAP, Introduction to Graphics programming - PyGame

UNIT-V

Introduction to Version Control Systems - Subversion/Git, Writing Unit Tests, Creating Documentation, Contributing to Open Source Projects

Text Book(s):

1. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 1st Edition 2012, O'Reilly.

Reference Book(s):

1. Jeff McNeil ,”Python 2.6 Text Processing: Beginners Guide”, 2010 ,Packet Publications
2. Mark Pilgrim ,”Dive Into Python “ , 2nd edition 2009, Apress
3. John V Guttag, “Introduction to Computation and Programming Using Python”, Revised and expanded Edition, MIT Press, 2013.
4. The Python Tutorial, <https://docs.python.org/2.7/tutorial/>

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
III	20UIT3AC3:2	PROGRAMMING IN PYTHON					3	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓		✓	
CO2	✓	✓				✓	✓	✓	✓	✓	
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 42, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-IV

Course Code: 20UIT4CC4
Instruction Hours: 4
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE IV - PROGRAMMING IN JAVA

Course Outcomes (COs):

After successful completion of this course, students will be able to:

- Understand the basic concepts of object oriented programming with Java language
- Knowledge of the structure and model of the Java programming language.
- Able to understand the use of Packages and Interface in java.
- Able to understand the exception handling and develop applets for web applications with I/O streams.
- Able to design window based applications with event handling.

UNIT I

Genesis of Java: Creation of Java – why java is important to internet – The Java Buzz words – An overview of Java Object Oriented Programming. Data types – Variables – Type conversion and casting – Automatic type promotion in Expressions – Strings. Arrays: One Dimensional Array – Multi Dimensional Array – Operators – Control statements.

UNIT II

Class Fundamentals – Declaring objects – Assigning object Reference variables – Introducing Methods – Constructors – Garbage collection – Finalize () Method – Stack class. A Closer Look at Methods and classes: Overloading Methods – Argument passing – Nested and Inner classes – String class – Using command line arguments. Inheritance Basics & Types - Method overriding – Dynamic Method Dispatch – Using Abstract class – Using final with inheritance.

UNIT III

Packages & Interface - Exception Handling - Creating your own Exception subclasses. Multithreaded Programming: Java Thread Model – Main Thread – Creating a Thread - Creating Multiple Threads–Using is Alive () and join () – Thread priorities – Synchronization – Inter thread Communication.

UNIT IV

I/O & Applets : I/O Basics Reading console Input – writing console output – The Print Writer class – Reading and Writing Files. The Applet class: - Applet Architecture – Applet Skeleton – Applet Display method – Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet – Audio Clip Interface. Event Handling Mechanisms – Delegation Event Model – Event classes – Sources of Events – Event Listener Interfaces – Adapter Classes.

UNIT V

AWT Classes – Window fundamentals – working with Frame Windows - working with Graphic Using AWT controls: Controls fundamentals – Labels – using Buttons – Applying check Boxes – Check Box group – Choice controls – Using a Text field – Using a Text Area – Understanding Layout Managers (Flow Layout only) – Menu Bars and Menus.

Text Book(s):

1. Herbert Schildt, “Java - The Complete Reference”, Ninth Edition, McGraw-Hill Education, 2014

Reference Book(s):

1. E. Balagurusamy, “Programming with Java”, Tata McGraw-Hill Education India, 2014
2. Sachin Malhotra & Saurabh Choudhary, “Programming in JAVA”, 2nd Ed, Oxford Press
3. Sagayaraj, Denis, Karthik and Gajalakshmi, “JAVA Programming for Core and Advanced Learners”, 2018

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
IV	20UIT4CC4	PROGRAMMING IN JAVA					4	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓		✓			✓	✓		✓	✓	
CO2	✓	✓	✓	✓		✓	✓		✓	✓	
CO3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓			✓	✓	✓		✓	✓	✓	
Number of matches (✓) = 41, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-IV

Course Code: 20UIT4CP4
Instruction Hours: 3
Credits: 3

Exam Hours: 3
Internal Marks: 40
External Marks: 60

CORE PRACTICAL IV - JAVA PROGRAMMING LAB

Course Outcomes (COs):

After successful completion of this course, students will be able to:

- To familiarize the students with Java environment.
 - To implement various concepts related to Java language.
 - Learn the basic concepts & techniques of Java.
 - Learn the advanced concepts of Java.
 - Generate an application based upon the concepts of Java
1. Define a class called Student with the attributes name, reg_number and marks obtained in four subjects (m1, m2, m3, m4). Write a suitable constructor and methods to find the total mark obtained by the student and display the details of the student.
 2. Write a Java program to find the area of a square, rectangle and triangle by
 3. Overloading Constructor (ii) Overloading Method.
 4. Write a java program to add two complex numbers. [Use passing objects as argument and return object].
 5. Define a class called Student_super with data members name, roll number and age. Write a suitable constructor and a method output () to display the details.
 6. Derive another class Student from Student_super with data members height and weight. Write a constructor and a method output () to display the details which overrides the super class method output(). [Apply method Overriding concept].
 7. Write a java program to create an interface called Demo, which contains a double type constant, and a method called area () with one double type argument. Implement the interface to find the area of a circle.
 8. Write a java program to create a thread using Thread class.
 9. Demonstrate Java inheritance using extends keyword.
 10. Create an applet with four Checkboxes with labels MARUTI-800, ZEN, ALTO and ESTEEM and a Text area object. The program must display the details of the car while clicking a particular Checkbox.
 11. Write a Java program to throw the following exception,
 12. Negative Array Size 2) Array Index out of Bounds
 13. Write a java program to create a file menu with option New, Save and Close, Edit menu with option cut, copy, and paste.

14. Write a java programming to illustrate Mouse Event Handling

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
IV	20UIT4CP4	JAVA PROGRAMMING LAB					3	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1		✓				✓	✓		✓		
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓	✓	✓	✓	✓		✓		
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓		✓			✓	✓	✓	✓	✓	
Number of matches (✓) = 39, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – IV

Course Code: 20UIT4AP1
Instruction Hours: 3
Credits: 3

Exam Hours: 3
Internal Marks: 25
External Marks: 75

ALLIED PRACTICAL I - PYTHON PROGRAMMING LAB

Course Outcomes (COs):

- To understand the programming basics in Python for writing, testing and debugging it's programs.
- To understand the object-oriented program design for develop and using it in Python programs
- Implement Conditionals and Loops statements for Python programs
- Use functions and represent Compound data using Lists, Tuples and Dictionaries
- Read and write data from & to the files in Python

1. Create a simple calculator to do all the arithmetic operations
2. Write a program to use control flow tools like if.
3. Write a program to use for loop
4. Data structures
 - use list as stack
 - use list as queue
 - tuple, sequence
5. Create new module for mathematical operations and use in your program
6. Write a program to read and write files, create and delete directories
7. Write a program with exception handling
8. Write a program using classes
9. Connect with MySQL and create address book
10. Write a program using string handling and regular expressions
11. Program to parse apache log file
12. Create a GUI program using pygtk

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
IV	20UIT4AP1	PYTHON PROGRAMMING LAB					3	3			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓	✓		✓	
CO2	✓	✓				✓	✓		✓	✓	
CO3	✓	✓	✓	✓		✓	✓	✓			
CO4	✓	✓	✓	✓	✓	✓	✓		✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓		✓	✓	
Number of matches (✓) = 39, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER –IV

Course Code: 20UIT4SBE1
Instruction Hours: 2
Credits: 2

Exam Hours: 3
Internal Marks: 25
External Marks: 75

SKILL BASED ELECTIVE I - QUANTITATIVE APTITUDE

Course Outcomes (COs):

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

- Understand the basic concepts of quantitative ability
- Understand the basic concepts of logical reasoning skills
- Acquire satisfactory competency in use of verbal reasoning
- Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning and Verbal Ability
- Compete in various competitive exams like TNPSC, UPSC, GPSC, CAT, CMAT, GRE, GATE, etc.

UNIT I

Numbers - HCF and LCM of numbers - Decimal fractions - Simplification - Square roots and cube roots - Average - problems on Numbers.

UNIT II

Problems on Ages - Surds and Indices - percentage - profits and loss - ratio and proportion - partnership - Chain rule.

UNIT III

Time and work - pipes and cisterns - Time and Distance - problems on trains - Boats and streams - simple interest - compound interest - Logarithms - Area - Volume and surface area - races and Games of skill.

UNIT IV

Permutation and combination - probability - True Discount - Bankers Discount - Height and Distances - Odd man out & Series.

UNIT V

Calendar - Clocks - stocks and shares - Data representation - Tabulation - Bar Graphs - Pie charts - Line graphs.

Text Book(s):

1. “Quantitative Aptitude”, R.S. AGGARWAL., S. Chand & Company Ltd.,

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
IV	20UIT4SBE1	QUANTITATIVE APITUDE					2	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓			✓		✓	✓	✓		✓	
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓		
CO3	✓	✓	✓	✓	✓	✓	✓		✓	✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓			
CO5		✓			✓	✓			✓	✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – V

Course Code: 20UIT5CC5
Instruction Hours: 5
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE V - COMPUTER NETWORKS

Course Outcomes (COs):

After successful completion of this course, students will be able to:

- To make students to understand basic computer network technology and aware about various types of cables used in guided media like coaxial cable, optical fiber cable, twisted pair cables and its categories.
- To study transmission media and realization.
- To explain the role of protocols in networking and to analyze the services and features of the protocol stack.
- Able to understand network layer techniques for designing subnets and supernets and analyze packet flow on basis of routing protocols.
- To understand design issues in Network Security and to understand security threats, security services

UNIT – I

Introduction – Network Hardware – Software – Reference Models – OSI and TCP/IP Models – Example Networks: Internet, ATM, Ethernet and Wireless LANs - Physical Layer – Theoretical Basis for Data Communication - Guided Transmission Media

UNIT - II

Wireless Transmission - Communication Satellites – Telephone System: Structure, Local Loop, Trunks and Multiplexing and Switching. Data Link Layer: Design Issues – Error Detection and Correction.

UNIT - III

Elementary Data Link Protocols - Sliding Window Protocols – Data Link Layer in the Internet - Medium Access Layer – Channel Allocation Problem – Multiple Access Protocols – Bluetooth.

UNIT - IV

Network Layer - Design Issues - Routing Algorithms - Congestion Control Algorithms – IP Protocol – IP Addresses – Internet Control Protocols.

UNIT - V

Transport Layer - Services - Connection Management - Addressing, Establishing and Releasing a Connection – Simple Transport Protocol – Internet Transport Protocols (ITP) - Network Security: Cryptography.

Text Book(s):

1. A. S. Tanenbaum, "Computer Networks", 4th Edition, Prentice-Hall of India, 2008.

Reference Book(s):

1. B. A. Forouzan, "Data Communications and Networking", Tata McGraw Hill, 4th Edition, 2007.
2. F. Halsall, "Data Communications, Computer Networks and Open Systems", Pearson Education, 2008.
3. D. Bertsekas and R. Gallager, "Data Networks", 2nd Edition, PHI, 2008.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5CC5	COMPUTER NETWORKS					5	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓		✓		
CO3	✓		✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓		✓	✓		✓	✓	✓	
CO5	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 35 Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-V

Course Code: 20UIT5CC6
Instruction Hours: 5
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE VI – OPERATING SYSTEMS

Course Outcomes (COs):

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

- Understand what is an operating system and the role it plays
- Describe and explain the fundamental components of a computer operating system.
- Define, restate, discuss, and explain the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems
- Describe and extrapolate the interactions among the various components of computing systems.
- A high-level understanding of the structure of operating systems, applications, and the relationship between them.

UNIT - I

Introduction - History of operating system- Different kinds of operating system – Operating system concepts - System calls-Operating system structure.

UNIT - II

Processes and Threads: Processes - threads - thread model and usage - inter process communication.

UNIT - III

Scheduling - Memory Management: Memory Abstraction - Virtual Memory - Page replacement algorithms.

UNIT - IV

Deadlocks: Resources- introduction to deadlocks - deadlock detection and recovery - deadlocks avoidance - deadlock prevention. Multiple processor system: multiprocessors - multi computers.

UNIT - V

Input / Output: principles of I/O hardware - principles of I/O software. Files systems: Files - directories - files systems implementation - File System Management and Optimization.

Text Book(s):

1. Andrew S. Tanenbaum, "Modern Operating Systems", 2nd Edition, PHI private Limited, New Delhi, 2008.

Reference Book(s):

1. William Stallings, "Operating Systems - Internals & Design Principles", 5th Edition, Prentice - Hall of India private Ltd, New Delhi, 2004.
2. Sridhar Vaidyanathan, "Operating System", 1st Edition, Vijay Nicole Publications, 2014.
3. System Programming and Operating Systems – D.M. Dhamdhare, Tata McGraw Hill Publishing Co., Limited.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5CC6	OPERATING SYSTEMS					5	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓		✓		✓	✓	✓	✓		
CO4	✓	✓	✓		✓	✓		✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER - V

Course Code: 20UIT5CC7
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE VII - WEB TECHNOLOGY

Course Outcomes (COs):

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

- To understand the concept of static web designing using HTML.
- To understand the concept of dynamic web designing using JavaScript and XML.
- To understand the concept of server-side web designing using PHP.
- To develop the different technologies used in the World Wide Web including XML, Perl, Rails and PHP.
- To enhance the technical skills for creating new web based applications.

UNIT – I

Structuring Documents for the Web: Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements, Phrase Elements, Lists, Editing Text, Core Elements and Attributes, Attribute Groups. Links and Navigation: Basic Links, Creating Links with the <a> Element, Advanced E- mail Links. Images, Audio, and Video: Adding Images Using the Element, Using Images as Links Image Maps, Choosing the Right Image Format, Adding Flash, Video and Audio to your web pages.

UNIT – II

Tables: Introducing Tables, Grouping Section of a Table, Nested Tables, Accessing Tables. Forms: Introducing Forms, Form Controls, Sending Form Data to the Server. Frames: Introducing Frameset, <frame> Element, Creating Links Between Frames, Setting a Default Target Frame Using <base> Element, Nested Framesets, Inline or Floating Frames with <iframe>.

UNIT – III

Cascading Style Sheets: Introducing CSS, Where you can Add CSS Rules. CSS Properties: Controlling Text, Text Formatting, Text Pseudo Classes, Selectors, Lengths, Introducing the Box Model. More Cascading Style Sheets: Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout wit, Page Layout CSS , Design Issues.

UNIT - IV

Java Script: How to Add Script to Your Pages, Variables and Data Types – Statements and Operators, Control Structures, Conditional Statements, Loop Statements – Functions - Message box, Dialog Boxes, Alert Boxes, Confirm Boxes, Prompt Boxes.

UNIT – V

Working with JavaScript: Practical Tips for Writing Scripts, JavaScript Objects: Window Object - Document object - Browser Object - Form Object - Navigator object Screen object - Events, Event Handlers, Forms – Validations, Form Enhancements, JavaScript Libraries.

Text Book(s):

1. Jon Duckett, Beginning HTML, XHTML, CSS and JavaScript, Wiley Publishing

Reference Book(s):

1. Chris Bates, “Web Programming”, Wiley Publishing 3d Edition.
2. M. Srinivasan, “Web Technology: Theory and Practice”, Pearson Publication
3. Gopalan N.P. and Akilandeswari J., —Web Technology, Prentice Hall of India, 2011.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5CC7	WEB TECHNOLOGY					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓		✓	✓	✓	✓		✓	✓	
CO5	✓	✓	✓		✓	✓		✓	✓	✓	
Number of matches (✓) = 36 Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER –V

Course Code: 20UIT5CP5
Instruction Hours: 4
Credits: 4

Exam Hours: 3
Internal Marks: 40
External Marks: 60

CORE PRACTICAL V - WEB TECHNOLOGY LAB

Course Outcomes (COs):

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

- Develop web pages using basic HTML and apply XML techniques in web design
 - Implement CGI using Perl.
 - Implement PHP & MySQL database connectivity for real world applications
 - Use AJAX with Rails.
 - Develop web pages using JavaScript concept.
1. Create a form having number of elements (Textboxes, Radio buttons, Checkboxes, and so on). Write JavaScript code to count the number of elements in a form.
 2. Create a HTML form that has number of Textboxes. When the form runs in the Browser fill the textboxes with data. Write JavaScript code that verifies that all textboxes has been filled. If a textboxes has been left empty, popup an alert indicating which textbox has been left empty.
 3. Develop a HTML Form, which accepts any Mathematical expression. Write JavaScript code to Evaluates the expression and Displays the result.
 4. Create a page with dynamic effects. Write the code to include layers and basic animation.
 5. Write a JavaScript code to find the sum of N natural Numbers. (Use user-defined function)
 6. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.
 7. Create a form for Student information. Write JavaScript code to find Total, Average, Result and Grade.
 8. Create a form for Employee information. Write JavaScript code to find DA, HRA, PF, TAX, Gross pay, Deduction and Net pay.
 9. Create a form consists of a two Multiple choice lists and one single choice list
 10. (a)The first multiple choice list, displays the Major dishes available

(b)The second multiple choice list, displays the Starters available.

(c)The single choice list, displays the Soft drinks available.

11. Create a web page using two image files, which switch between one another as the mouse pointer moves over the image. Use the on Mouse Over and on Mouse Out event handlers.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5CP5	WEB TECHNOLOGY LAB					4	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓		✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓		✓	✓	✓	
Number of matches (✓) = 38, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – V

Course Code: 20UIT5MBE1:1
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE I – 1. DIGITAL COMPUTER FUNDAMENTALS

Course Outcomes (COs):

- Bridge the fundamental concepts of computers with the present level of knowledge of the students.
- Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet
- Understand binary, hexadecimal and octal number systems and their arithmetic.
- Understand how logic circuits and Boolean algebra forms as the basics of digital computer.
- Demonstrate the building up of Sequential and combinational logic from basic gates.

UNIT – I

Number Systems and Codes: Number System – Base Conversion – Binary Codes – Code Conversion. Digital Logic: Logic Gates – Truth Tables – Universal Gates.

UNIT – II

Boolean Algebra: Laws and Theorems – SOP, POS Methods – Simplification of Boolean Functions – Using Theorems, K-Map, Prime – Implicant Method – Binary Arithmetic: Binary Addition – Subtraction – Various Representations of Binary Numbers – Arithmetic Building Blocks – Adder – Subtractor.

UNIT – III

Combinational Logic: Multiplexers – Demultiplexers – Decoders – Encoders – Code Converters – Parity Generators and Checkers.

UNIT – IV

Sequential Logic: RS, JK, D, and T Flip-Flops – Master-Slave Flip-Flops. Registers: Shift Registers – Types of Shift Registers.

UNIT – V

Counters: Asynchronous and Synchronous Counters - Ripple, Mod, Up-Down Counters– Ring Counters. Memory: Basic Terms and Ideas –Types of ROMs – Types of RAMs.

Text Book(s):

1. V.Rajaraman and T.Radhakrishnan, *Digital Computer Design*, Prentice Hall of India, 2001

2. D.P.Leach and A.P.Malvino, *Digital Principles and Applications* – TMH – Fifth Edition – 2002.
3. M. Moris Mano, *Digital Logic and Computer Design*, PHI, 2001.
4. T.C.Bartee, *Digital Computer Fundamentals*, 6th Edition, Tata McGraw Hill, 1991.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5MBE1:1	DIGITAL COMPUTER FUNDAMENTALS					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓		✓	✓		
CO4	✓	✓		✓	✓	✓	✓	✓		✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – V

Course Code: 20UIT5MBE1:2
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE I – 2. INTERNET PROGRAMMING

Course Outcomes (COs):

- Students will gain deep understanding of the use and implementation of HTML tags.
- Students will apply their knowledge to create different purpose websites.
- Students will apply their knowledge to create interactive websites.
- Students will have the ability to function and communicate effectively as ethically and social responsible computer science professionals.
- Students will develop applications using Java Servlet and PHP.

UNIT I

Web Essentials: Clients, Servers and Communication – The Internet – Basic Internet protocols – World wide web – HTTP Request Message – HTTP Response Message – Web Clients – Web Servers – HTML5 – Tables – Lists – Image – HTML5 control elements – Semantic elements – Drag and Drop – Audio – Video controls – CSS3 – Inline, embedded and external style sheets – Rule cascading – Inheritance – Backgrounds – Border Images – Colors – Shadows – Text – Transformations – Transitions – Animations.

UNIT II

Java Script: An introduction to JavaScript–JavaScript DOM Model-Date and Objects,-Regular Expressions- Exception Handling-Validation-Built-in objects-Event Handling- DHTML with JavaScript- JSON introduction – Syntax – Function Files – Http Request – SQL.

UNIT III

Servlets: Java Servlet Architecture- Servlet Life Cycle- Form GET and POST actions- Session Handling- Understanding Cookies- Installing and Configuring Apache Tomcat Web Server- DATABASE CONNECTIVITY: JDBC perspectives, JDBC program example – JSP: Understanding Java Server Pages-JSP Standard Tag Library (JSTL)-Creating HTML forms by embedding JSP code.

UNIT IV

An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions- Form Validation- Regular Expressions – File handling – Cookies – Connecting to Database. XML: Basic XML- Document Type Definition- XML Schema DOM and Presenting XML, XML Parsers and Validation, XSL and XSLT Transformation, News Feed (RSS and ATOM).

UNIT V

AJAX: Ajax Client Server Architecture-XML Http Request Object-Call Back Methods; Web Services: Introduction- Java web services Basics – Creating, Publishing, Testing and Describing a Web services (WSDL)-Consuming a web service, Database Driven web service from an application –SOAP.

Text Book(s):

1. Deitel and Deitel and Nieto, Internet and World Wide Web – How to Program, Prentice Hall, 5th Edition, 2011.

Reference Book(s):

1. Stephen Wynkoop and John Burke —Running a Perfect Website, QUE, 2nd Edition, 1999.
2. Chris Bates, Web Programming – Building Intranet Applications, 3rd Edition, Wiley Publications, 2009.
3. Jeffrey C and Jackson, —Web Technologies A Computer Science Perspective, Pearson Education, 2011.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5MBE1:2	INTERNET PROGRAMMING					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓		✓	✓		✓	✓		✓		
CO4	✓	✓	✓		✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓		✓	✓	✓	
Number of matches (✓) = 36, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER - V

Course Code: 20UIT5MBE1:3
Instruction Hours: 5
Credits: 4

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE I - 3.DATA STRUCTURES AND ALGORITHMS

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to

- Describe how arrays, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
- Compare alternative implementations of data structures with respect to performance.
- Compare and contrast the benefits of dynamic and static data structures implementations
- Discuss the computational efficiency of the principal algorithms for sorting, searching, and merging.
- Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it.

UNIT I

Introduction of algorithms, analyzing algorithms, Arrays : Representation of Arrays, Implementation of Stacks and queues, Application of Stack: Evaluation of Expression - Infix to postfix Conversion - Multiple stacks and Queues, Sparse Matrices.

UNIT II

Linked list : Singly Linked list - Linked stacks and queues - polynomial addition - More on linked Lists - Doubly linked List and Dynamic Storage Management - Garbage collection and compaction.

UNIT III

Trees: Basic Terminology - Binary Trees - Binary Tree representations - Binary trees - Traversal - More on Binary Trees - Threaded Binary trees - counting Binary trees. Graphs: Terminology and Representations - Traversals, connected components and spanning Trees, Single Source Shortest path problem.

UNIT IV

Symbol Tables : Static Tree Tables - Dynamic Tree Tables - Hash Tables : Hashing Functions - overflow Handling. External sorting : Storage Devices - sorting with Disks : K-way merging - sorting with tapes.

UNIT V

Internal sorting : Insertion sort - Quick sort - 2 way Merge sort - Heap sort - shell sort - sorting on keys. Files: Files, Queries and sequential organizations - Index Techniques - File organization.

Text Book(s):

1. Ellis Horowitz, Sartaj Shani, Data Structures, Galgotia publication.

Reference Book(s):

1. Data structures Using C Aaron M. Tenenbaum, Yedidyah Langsam, Moshe J. Augenstein, Kindersley (India) Pvt. Ltd.,
2. Data structure and Algorithms, Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, Pearson Education Pvt. Ltd.,
3. "Data Structures" – Lipschuta, Tata Mcgraw Hill, Schaum's Outline Series, 2006.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5MBE1:3	DATA STRUCTURE AND ALGORITHMS					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓		✓		
CO4	✓	✓	✓		✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – V

Course Code: 20UIT5SBE2
Instruction Hours: 2
Credits: 2

Exam Hours: 3
Internal Marks: 25
External Marks: 75

SKILL BASED ELECTIVE II – ANDROID PROGRAMMING

Course Outcomes (COs):

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

1. Understand the basic concepts of Android programming
2. Install and configure Android application development tools.
3. Design and develop user Interfaces for the Android platform.
4. Save state information across important operating system events.
5. Apply Java programming concepts to Android application development.

UNIT I

Introduction to Android: History of Android – Versions of Android – Android Architecture – App Architecture – Components – Intents – Manifest – App Package - Activities - Services – Broadcast Receivers – Content Providers – Installing the Android SDK – Installing an Android Platform – Creating an Android Virtual Device – Starting the AVD – Introducing UC – Creating UC – Installing and Running UC – Preparing UC for Publishing – Migrating to Eclipse – Developing UC with Eclipse.

UNIT II

User Interface: Customizing the Window – Creating and Displaying Views – Monitoring Click Actions – Resolution Independent Assets – Locking Activity Orientation – Dynamic Orientation Locking – Manually Handling Rotation - Creating Pop-up Menu Actions – Customizing Options Menu – Customizing Back Button – Emulating the Home Button – Monitoring TextView Changes – Scrolling TextView Ticker – Animating a View – Creating Drawables as Backgrounds – Creating Custom State Drawables – Applying Masks to Image – Creating Dialogs that Persist – Implementing Situation – Specific Layouts – Customizing Keyboard Actions – Dismissing Soft Keyboard – Customizing AdapterView Empty View – Customizing ListView Rows – Making ListView Section Headers – Creating Compound Controls.

UNIT III

Interacting with Device Hardware and Media – Interacting Device Location – Mapping Locations – Annotating Maps – Capturing Images and Videos – Making a Custom Camera Overlay – Recording Audio – Adding Speech Recognition – Playing Back Audio/Video – Creating a Tit Monitor – Monitoring Compass Orientation.

UNIT IV

Persisting Data : Marking a Preference Screen – Persisting Simple Data – Reading and Writing Files – Using Files as Resources - Managing a Database – Querying a Database –Backing Up Data – Sharing your Database – Sharing your other Data.

UNIT V

Interacting with the Systems: Notifying from the Background – Creating Timed and Periodic Tasks – Scheduling a Periodic Task – Creating Sticky Operations – Running Persistent Background Operations – Launching Other Applications – Launching System Application – other Applications – Interacting with Contacts – Picking Device Media – Saving to the MediaStore
Working with Libraries : Creating Java Library JARs – Using Java Library JARs – Creating Android Library Projects - Using Android Library Projects – Charting – Practical Push Messaging.

Text Book(s):

1. Dave Smith and Jeff Friesen, “Android Recipes: A Problem – Solution Approach”, RakmoPress Pvt., Ltd, New Delhi, 2011.

Reference Book(s):

1. Web Reference:<http://developer.android.com/Android Developer's Guides>.
2. “The Wireless Application Protocol: Writing Applications for the Mobile Internet”, Sandeep Singhal, et al.
3. “Learning Android: Develop Mobile Apps Using Java and Eclipse”, Marko Gargenta, Masumi Nakamura, O'Reilly, Second Edition, 2014.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5SBE2	ANDROID PROGRAMMING					2	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓		✓	✓	✓		✓	✓	
CO5	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 37, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – V

Course Code: 20UIT5SBE3
 Instruction Hours: 2
 Credits: 2

Exam Hours: 3
 Internal Marks: 25
 External Marks: 75

SKILL BASED ELECTIVE III – DISTRIBUTED PROGRAMMING

Course Outcomes (COs):

- Study software components of distributed computing systems.
- Know about the communication and interconnection architecture of multiple computer systems.
- Recognize the inherent difficulties that arise due to distributed-nests of computing resources.
- Understanding of networks & protocols, mobile & wireless computing and their applications to real world problems.
- At the end students will be familiar with the design, implementation and security issues of distributed system

UNIT I

Introduction to distributed Computing – Challenges involved in establishing remote connection – Strategies involved in remote computation – Current Distributed computing practices through Dot Net and Java technologies.

UNIT II

Advanced ADO.NET – Disconnected Data Access – Gridview, Details View, Form View controls – Crystal Reports – Role of ADO, NET in Distributed Application

UNIT III

Advanced ASP, NET – AdRotator, Multiview, Wizard and Image Map Controls – Master Pages – Site Navigation – Web Parts – Uses of these controls and features in Website development

UNIT IV

Advanced features of ASP.NET – Security in ASP, NET – State Management in ASP, NET – Mobile Application development in ASP, NET – Critical usage of these features in Website development.

UNIT V

Web services – Role of Web services in Distributed Computing – WSDL, UDDI, SOAP concepts involved in Web Services – Connected a Web Service to a Data Base – Accessing a Web Service through ASP, NET application.

Text Book(s):

1. Walther, "ASP.NET 3.5", SAMS Publication, 2005.

Reference Book(s):

1. Designing Microsoft ASP.NET Applications-Douglas J. Reilly-Microsoft Press.
2. Introduction to Reliable and Secure Distributed Programming, Christian cachin, Rachid Guerraoui, Luís Rodrigues, Kindle Edition, 2011.
3. ASP.Net: The Complete Reference, Matthew MacDonald, 1st Edition, McGraw Hill India Publisher, 2002. ISBN: 9780070495364, 007049536X.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
V	20UIT5SBE3	DISTRIBUTED PROGRAMMING					2	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓			
CO2	✓	✓				✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓		✓	✓	✓	✓		✓	✓	
Number of matches (✓) = 38, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – VI

Course Code: 20UIT6CC8
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE VIII - RELATIONAL DATABASE MANAGEMENT SYSTEMS

Course Outcomes (COs):

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

1. Understand database concepts and structures in relational algebra, ER model and relational model.
2. To design and build a simple database system with the fundamental tasks of modelling, designing, and implementing a DBMS.
3. Understand functional dependency and functional decomposition and apply various normalization techniques.
4. Perform PL/SQL programming using concept of cursor management, error handling, Package and triggers.
5. Execute various advance SQL queries related to transaction processing and locking using concept of concurrency control.

UNIT - I

Introduction: Database System Applications-DBMS Vs. File System - View of Data-Data Model Database Languages - Database users and Administrators - Transaction Management - Database System Structure - Application Architecture. Data Models: Basic Concepts - Constraint- Keys-ER Diagram - Weak Entity - Extended ER Features - UML; Relational Model: Structure of Relational Databases - Relational Algebra - Views.

UNIT – II

SQL: Background-Basic Structure-Set Operation-Aggregate Function-Null Values-Nested Sub Queries - Views - Modification of the Database - Data Definition Language - Embedded SQL - Dynamic SQL.

UNIT-III

Advance SQL : Integrity and Security: Domain - Constraint - Referential Integrity - assertions - Triggers - Security and Authorization - Authorization in SQL - Encryption and Authentication.

UNIT - IV

Relational Database Design: First Normal Form - Pitfalls in Relational Database Design-Functional Dependencies (Second Normal Form) - Boyce-Codd Normal Form - Third Normal Form - Fourth Normal Form - Overall Database Design Process.

UNIT-V

Transaction Management: Transaction concepts - States - Serializability. Lock based concurrency control: Locks - Granting - Two-Phase Locking protocol. Time stamp based protocol: Timestamps - Timestamp ordering protocol - Dead lock handling.

Text Book(s):

1. A Silberschatz, H Korth, S Sudarshan, "Database System and Concepts", 5th Edition McGraw-Hill, 2005.

Reference Book(s):

1. Alexix Leon & Mathews Leon, "Essential of DBMS", 2nd reprint, Vijay Nicole Publications, 2009.
2. Alexix Leon & Mathews Leon, "Fundamentals of DBMS", 2nd Edition, Vijay Nicole Publications, 2014.
3. Database Systems: Models, Languages, Design and Application, Ramez Elmasri, Pearson Education, 2014.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits		
VI	20UIT6CC8	RELATIONAL DATABASE MANAGEMENT SYSTEMS					6	5		
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	✓	✓	✓	✓		✓	✓		✓	✓
CO2	✓	✓				✓	✓	✓		✓
CO3	✓	✓	✓	✓		✓	✓		✓	✓
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of matches (✓) = 41, Relationship: High										

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – VI

Course Code: 20UIT6CC9
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

CORE COURSE IX – INTERNET OF THINGS

Course Outcomes (COs):

Upon completion of the course, the student should be able to:

- To understand overview of IoT and Internet principles.
- To learn about the concepts of IoT and various IoT related protocols
- Analyze various protocols for IoT.
- Apply data analytics and use embedded code related to IoT.
- Analyze applications of IoT in real time scenario

UNIT I:

The Internet of Things: An Overview: The Flavour of the Internet of Things, The “Internet” of “Things”, The Technology of the Internet of Things, Enchanted Objects, Who is Making the Internet of Things?-Design Principles for Connected Devices: Calm and Ambient Technology, Magic as Metaphor, Privacy, Keeping Secrets, Whose Data Is It Anyway? Web Thinking for Connected Devices, Small Pieces, Loosely Joined, First-Class Citizens On The Internet, Graceful Degradation and Affordances.

UNIT II:

Internet Principles: Internet Communications: An Overview, IP, TCP, The IP Protocol Suite (TCP/IP), UDP, IP Addresses, DNS, Static IP Address Assignment, Dynamic IP Address Assignment, IPv6, MAC Addresses, TCP and UDP Ports, An Example: HTTP Ports, Other Common Ports, Application Layer Protocols, HTTP.HTTPS: Encrypted HTTP, Other Application Layer Protocols-Thinking About Prototyping: Sketching, Familiarity, Costs versus Ease of Prototyping, Prototypes and Production, Changing Embedded Platform, Physical Prototypes and Mass Personalisation, Climbing into the Cloud, Open Source versus Closed Source, Why Closed? Why Open? Mixing Open and Closed Source, Closed Source for Mass Market Projects, Tapping into the Community.

UNIT III:

Prototyping Embedded Devices: Electronics, Sensors, Actuators, Scaling Up the Electronics, Embedded Computing Basics, Microcontrollers, System-on-Chips, Choosing Your Platform, Arduino, Developing on the Arduino, Some Notes on the Hardware, Openness, Raspberry Pi, Cases and Extension Boards, Developing on the Raspberry Pi, Some Notes on the Hardware, Openness-Prototyping the Physical Design: Preparation, Sketch, Iterate, and Explore, Nondigital

Methods, Laser Cutting, Choosing a Laser Cutter, Software, Hinges and Joints, 3D Printing, Types of 3D Printing, Software, CNC Milling, Repurposing/Recycling-

UNIT IV:

Prototyping Online Components: Getting Started with an API, Mashing Up APIs, Scraping, Legalities, Writing a New API, Clockodillo, Security, Implementing the API, Using Curl to Test, Going Further, Real-Time Reactions, Polling, Comet, Other Protocols, MQ Telemetry Transport, Extensible Messaging and Presence Protocol, Constrained Application Protocol-Techniques for Writing Embedded Code: Memory Management, Types of Memory, Making the Most of Your RAM, Performance and Battery Life, Libraries, Debugging.

UNIT V:

Business Models: A Short History of Business Models, Space and Time, From Craft to Mass Production, The Long Tail of the Internet, Learning from History, The Business Model Canvas, Who Is the Business Model For? Models, Make Thing, Sell Thing, Subscriptions, Customisation, Be a Key Resource, Provide Infrastructure: Sensor Networks, Take a Percentage, Funding an Internet of Things Startup, Hobby Projects and Open Source, Venture Capital, Government Funding, Crowdfunding, Lean Startups

Text Book(s):

1. “Designing the Internet of Things” by Adrian McEwen, Hakim Cassimally, WILEY Publisher, 1st Edition, 2014.

Reference Book(s):

1. “Rethinking the Internet of Things-A scalable approach to connecting everything”, by Francis DaCosta, Apress open publication, 2013.
2. “Learning Internet of Things” by Peter Waher, PACKT Publishing-Birmingham-mumbai-2015.
3. “Internet of Things: A Hands on Approach”, by ArhdeepBahga and Vijay Madiseti (<http://www.internet-of-things-book.com/>).

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6CC9	INTERNET OF THINGS					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓		✓	✓	✓	✓	✓	✓	
CO2	✓	✓		✓	✓	✓	✓		✓	✓	
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓		✓		✓	✓		✓	✓	✓	
CO5	✓	✓	✓	✓		✓	✓	✓		✓	
Number of matches (✓) = 40, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – VI

Course Code: 20UIT6CP6
 Instruction Hours: 5
 Credits: 4

Exam Hours: 3
 Internal Marks: 40
 External Marks: 60

CORE PRACTICAL VI - SQL & PLSQL LAB

Course Outcomes (COs):

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

- Enhance the knowledge and understanding of database analysis and design.
- Enhance the knowledge of the processes of database development and administration using SQL and PL/SQL.
- Solve Database problems using Oracle 9i SQL and PL/SQL.
- To improve and enhance programming skills and techniques using SQL and PL/SQL.
- Implement the software background using SQL and PL/SQL.

Demonstrate the following SQL commands and can take any back end RDBMS system for implementation purpose.

1. Data Definition of Base Tables.
2. DDL with Primary key constraints
3. DDL with constraints and verification by insert command
4. Data Manipulation of Base Tables and Views
5. Demonstrate the Query commands
6. Write a PL/SQL code block that will accept an account number from the user and debit an amount of Rs. 2000 from the account if the account has a minimum balance of 500 after the amount is debited. The process is too fired on the Accounts table.
7. Write a PL/SQL code block to calculate the area of the circle for a value of radius varying from 3 to 7. Store the radius and the corresponding values of calculated area in a table Areas. Areas – radius, area.
8. Write a PL/SQL block of code for reversing a number. (Example: 1234 as 4321).
9. Create a transparent audit system for a table Client_master (client_no, name, address, Bal_due). The system must keep track of the records that are being deleted or updated. The functionality being when a record is deleted or modified the original record details and the date of operation are

stored in the auditclient (client_no, name, bal_due, operation, userid, oupdate) table, then the delete or update is allowed to go through.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6CP6	SQL & PLSQL LAB					5	4			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓		✓	✓		✓	✓	✓	✓	✓	
CO2	✓		✓	✓	✓	✓	✓		✓	✓	
CO3	✓	✓	✓	✓	✓			✓	✓	✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5		✓	✓			✓	✓	✓		✓	
Number of matches (✓) = 40, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – VI

Course Code: 20UIT6MBE2:1
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE II – 1.SOFTWARE ENGINEERING

Course Outcomes (COs):

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

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public Needs,
- An ability to communicate effectively with a range of audiences to the software products.
- An ability to recognize ethical and professional responsibilities in engineering based on the software testing.
- To understand how to manage the software reliability and quality.

UNIT - I

Introduction - Software Engineering Discipline - Evolution and Impact - Programs Vs Software Products. Software Life Cycle Models: Use of a Life Cycle Models - Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Evolutionary Model - Spiral Model. Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques -Risk Management.

UNIT - II

Requirements Analysis and Specification: Requirements Gathering and Analysis -Software Requirements Specification (SRS) - Formal System Development Techniques. Software Design: Characteristics of a Good Software Design - Cohesion and Coupling -Neat Arrangement - Software Design Approaches.

UNIT - III

Function-Oriented Software Design: Overview of SA/SD Methodology - Structured Analysis - Data Flow Diagrams (DFDs).Object Modeling Using UML: Overview of Object-Oriented Concepts - UML Diagrams - Use Case Model - Class Diagrams - Interaction Diagrams - Activity Diagrams - State Chart Diagram.

UNIT - IV

User Interface Design: Characteristics of a Good User Interface - Basic Concepts - Types of User Interfaces - Component-Based GUI Development; Coding and Testing: Coding - Testing - UNIT

Testing - Black-Box Testing - White-Box Testing - Debugging -Integration Testing - System Testing.

UNIT - V

Software Reliability and Quality Management: Software Reliability - Statistical Testing -Software Quality - Software Quality Management System - ISO 9000.Computer Aided Software Engineering: CASE Environment - CASE support in Software Life Cycle - Characteristics of CASE Tools - Architecture of a CASE Environment. Software Maintenance: Characteristics of Software Maintenance - Software Reverse Engineering - Software Maintenance Process Models - Estimation of Maintenance Cost. Software Reuse: Issues in any Reuse Program - Reuse Approach.

Text Book(s):

1. Rajib Mall, "Fundamentals of Software Engineering", 3rd Edition, Prentice Hall of India Private Limited, 2008.

Reference Book(s):

1. Rajib Mall, "Fundamentals of Software Engineering", 4thEdition, Prentice Hall of India Private Limited, 2014.
2. Richard Fairley, "Software Engineering Concepts", TMGH Publications, 2004.
3. Software Engineering for Internet Applications – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6MBE2:1	SOFTWARE ENGINEERING					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1		✓			✓	✓	✓			✓	
CO2	✓	✓	✓	✓	✓	✓	✓		✓	✓	
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓				✓	✓				✓	
Number of matches (✓) = 36, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-VI

Course Code: 20UIT6MBE2:2
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE II - LINUX & SHELL PROGRAMMING

Course Outcomes (COs):

On completion of the course, the student will be able to

- To understand the Linux OS and study the shell programming concepts.
- To simulate the file commands.
- To write shell program for handling files.
- To write programs for familiarizing control statements.
- To write programs for handling strings.

UNIT I

Introduction to Linux: operating system and Linux - History of Linux and Unix - Linux overview - Linux Distributions - Vi editors.

UNIT II

Shell - comparison of Shells - working in the shell - Learning Basic Commands - Compiler and interpreter differences - various directories - Drilling deep into process management, job control and Automation.

UNIT III

Text Processing - Text filtering Tools - working with commands. - Logical operators. - local variables and its scope - working with arrays.

UNIT IV

Tricks with shell scripting - interactive shell scripts - The here document and << operator - sort command - WC command - file handling - Debugging -

UNIT V

Automating Decision - Making in scripts - Automating repetitive tasks - working with Functions.

Text Book(s):

1. The Complete Reference LINUX - Richard L. Petersen, McGraw Hill,
2. LINUX shell scripting by Ganesh Naik, Packt Publishing Ltd.,

Reference Book(s):

1. Learning the Unix Operating System- Jerry Peek, Grace Todino & John Strang, Fourth Edition, O'Reilly, 1998.
2. Sumitabha Das "Unix Concepts and Applications", Tata McGraw Hill Education.
3. Graham Steven, Shah Steve, Linux Administration – A beginner's guide, Third edition, Dreamtech press, 2003.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6MBE2:2	LINUX & SHELL PROGRAMMING					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓		✓	✓	
CO2	✓	✓			✓	✓	✓	✓		✓	
CO3		✓	✓	✓		✓	✓		✓	✓	
CO4	✓	✓	✓	✓	✓	✓		✓	✓	✓	
CO5	✓		✓	✓	✓	✓	✓	✓		✓	
Number of matches (✓) = 39, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER - VI

Course Code: 20UIT6MBE2:3
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 25
External Marks: 75

MAJOR BASED ELECTIVE II – 3. MULTIMEDIA SYSTEMS

Course Outcomes (COs):

After successfully completed course, students will be able to:

- Describe the types of media and define multimedia system.
- Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
- Use and apply tools for image processing, video, sound and animation.
- Apply methodology to develop a multimedia system.
- Apply acquired knowledge in the field of multimedia in practice and independently continue to expand knowledge in this field.

UNIT I

Multimedia Definition - Use Of Multimedia - Delivering Multimedia - Text: About Fonts and Faces - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext.

UNIT II

Images: Plan Approach - Organize Tools - Configure Computer Workspace - Making Still Images - Color - Image File Formats. Sound: The Power of Sound - Digital Audio - Midi Audio - Midi vs. Digital Audio - Multimedia System Sounds - Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.

UNIT III

Animation: The Power of Motion - Principles of Animation - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays - Digital Video Containers - Obtaining Video Clips - Shooting and Editing Video.

UNIT IV

Making Multimedia: The Stage of Multimedia Project - The Intangible Needs - The Hardware Needs - The Software Needs - An Authoring Systems Needs- Multimedia Production Team.

UNIT V

Planning and Costing: The Process of Making Multimedia - Scheduling - Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent.

Text Book(s):

1. Tay Vaughan, "Multimedia: Making It Work", 8th Edition, Osborne/McGraw-Hill, 2001.

Reference Book(s):

1. Ralf Steinmetz & Klara Nahrstedt "Multimedia Computing, Communication & Applications", Pearson Education, 2012.
2. David Hillman, Multimedia Technology and Applications, Galgotia Publications Pvt. Ltd.
3. V.K. Jain, Introduction to Multimedia and its applications, Khanna Publishing, 2012.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6MBE2:3	MULTIMEDIA SYSTEMS					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓		✓	✓	
CO2	✓	✓			✓	✓	✓		✓	✓	
CO3		✓	✓	✓		✓	✓	✓	✓	✓	
CO4	✓	✓		✓	✓	✓	✓	✓		✓	
CO5	✓		✓	✓	✓	✓		✓	✓	✓	
Number of matches (✓) = 39, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER- VI

Course Code: 20UIT6PW
 Instruction Hours: 6
 Credits: 5

Exam Hours: 3
 Internal Marks: 40
 External Marks: 60

MAJOR BASED ELECTIVE III – MINI PROJECT

Course Outcomes (COs):

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

- Identify the requirements for the real world problems.
 - Conduct a survey of several available literatures in the preferred field of study.
 - Study and enhance software/ hardware skills
 - Demonstrate and build the project successfully by hardware requirements, coding, emulating and testing.
 - To report and present the findings of the study conducted in the preferred domain
- Students do Mini Project in their respective Colleges.
- The objective of the Mini Project is to enable the students to work in convenient groups of not more than four members on a project with a Latest Software.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6PW	MINI PROJECT					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓	✓	✓	✓	✓	
CO2	✓	✓			✓	✓		✓	✓	✓	
CO3	✓	✓	✓	✓		✓	✓	✓	✓		
CO4	✓		✓	✓	✓	✓	✓			✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Number of matches (✓) = 40, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER – VI

Course Code: 20UIT6MBE3:1

Instruction Hours: 6

Credits: 5

Exam Hours: 3

Internal Marks: 40

External Marks: 60

MAJOR BASED ELECTIVE III – 1. SHELL PROGRAMMING LAB

Course Outcomes (COs):

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

- Possess good knowledge in script writing
- Process the text in the Linux environment
- Solve the practical issues in Linux shell scripting
- To understand the concept of file handling
- Able to write scripts with functions.

1. Write a shell script to simulate the file commands: rm, cp, cat, mv, cmp, wc, split, diff.
2. Write a shell script to show the following system configuration:
 - a. currently logged user and his log name.
 - b. current shell, home directory, Operating System type, current Path setting, current working directory.
 - c. show currently logged number of users, show all available shells
 - d. show CPU information like processor type, speed
 - e. show memory information.
3. Write a Shell Script to implement the following: pipes, Redirection and tee commands.
4. Write a shell script for displaying current date, user name, file listing and directories by getting user choice.
5. Write a shell script to implement the filter commands.
6. Write a shell script to remove the files which has file size as zero bytes.
7. Write a shell script to find the sum of the individual digits of a given number.
8. Write a shell script to find the greatest among the given set of numbers using command line arguments.
9. Write a shell script for palindrome checking.

10. Write a shell script to print the multiplication table of the given argument using for-loop.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
VI	20UIT6MBE3:1	SHELL PROGRAMMING LAB					6	5			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓	✓	✓		✓		✓		✓	
CO2	✓	✓			✓	✓	✓	✓	✓		
CO3	✓	✓	✓	✓		✓	✓		✓	✓	
CO4	✓		✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Number of matches (✓) = 41, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER- VI

Course Code: 20UIT6MBE3:2
Instruction Hours: 6
Credits: 5

Exam Hours: 3
Internal Marks: 40
External Marks: 60

MAJOR BASED ELECTIVE III – 3.COMPUTER GRAPHICS AND ANIMATION LAB

Course Outcomes (COs):

- To understand graphics concepts using different algorithms.
 - To develop, design and implement two and three dimensional graphical structures using OpenGL.
 - To understand multimedia compression techniques and applications of multimedia.
 - Enhance the technical skills using graphics techniques.
 - Develop real time applications graphics and multimedia concepts.
-
1. Write a program to draw a hut or other geometrical figures.
 2. Write a program to draw a line through Bresenham's Algorithm.
 3. Write a program to draw a line using DDA Algorithm.
 4. Write a program to draw a line using Mid-Point Algorithm.
 5. Write a program to draw a circle using Mid-Point Algorithm.
 6. Write a program to draw a ellipse using Mid-Point Algorithm.
 7. Write a program to rotate a circle around any arbitrary point or around the boundary of another circle.
 8. Write a program to perform line clipping.
 9. Write a program to implement reflection of a point, line.
 10. Write a program to perform shearing on a line.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits		
VI	20UIT6MBE3:2	COMPUTER GRAPHICS AND ANIMATION LAB					6	5		
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	✓	✓	✓	✓		✓		✓		✓
CO2	✓	✓			✓	✓	✓	✓	✓	
CO3	✓		✓	✓		✓	✓		✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO5	✓	✓	✓	✓	✓	✓		✓	✓	✓
Number of matches (✓) = 39, Relationship: High										

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-III

Course Code: 20UIT3NME1
Instruction Hours: 2
Credits: 2

Exam Hours: 3
Internal Marks: 25
External Marks: 75

PRAT-IV - NON MAJOR ELECEITIVE 1 - OFFICE AUTOMATION

Course Outcomes (COs):

On completion of the course, the student will be able to

- To understand the office automation work and multimedia concepts.
- To perform documentation using MS Word.
- To perform accounting operations using MS Excel and analyses the data using graphs for decision making.
- To perform presentation for effective teaching.
- Enhance the ability of information management using system.

UNIT I:

Computer Fundamentals: Computer Introducion – Operating system Fundamentals – Components of a computer system –Input and Output devices – Memory Devices.

UNIT II:

MS –Word: Working with documents -Opening and saving files, Editing text documents - Formatting documents -Header and footer -Creating tables -Inserting clip arts -Tools.

UNIT III:

MS – Excel: Spreadsheet –Formatting Cells / Worksheet – Working with Formula, Function and Charts – Sorting and Filtering data - Graphs

UNIT IV:

MS – Power Point: Introduction to MS Power Point –Slide Layout –Design Slides –Insert Pictures and Graphs – Slide show - Adding multimedia effects.

UNIT V:

Multimedia: Introduction to multimedia-Color models -Multimedia presentation -Images, pictures, text, animation, audio, video.

Text Book(s):

1. MS-Office and Internet by Alexis Leon.

2. Prabhat K Andleigh Kiran Thakrar, Multimedia systems design, Prentice Hall of India, New Delhi, 2005.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
III	20UIT3NME1	OFFICE AUTOMATION					2	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓					✓	✓			
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓				✓		✓	✓	
Number of matches (✓) = 40, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD:

SEMESTER-IV

Course Code: 20UIT4NME2
Instruction Hours: 2
Credits: 2

Exam Hours: 3
Internal Marks: 25
External Marks: 75

PRAT-IV NON MAJOR ELECEITIVE 2 - DESK TOP PUBLISHING

Course Outcomes (COs):

On completion of the course, the student will be able to

- To understand the desktop publishing software concepts.
- To perform documentation using PageMaker.
- To perform image editing process using Photoshop.
- To perform drawing shapes in Corel draw.
- Enhance the ability to work in Corel draw environment.

UNIT I:

Page Maker: Introduction to Page maker -Basics menus & tools -Guides & rulers -Drawing tools - Fills & outlines.

UNIT II:

In Page Maker working with text, paragraphs, graphics and tables using control palettes.

UNIT III:

Photoshop: Introduction to Photoshop –The File menu -The tools -Drawing lines & shapes - Inserting picture and shapes -filling colors -Text effects, working with layers, filters.

UNIT IV:

Corel Draw: Corel draw Introduction–Menus and tools -Drawing lines and shapes - Inserting pictures (objects, tables, templates) - Inserting symbols & Clip arts.

UNIT V:

Working with text and images in Corel draw - Page layout and background.

Text Book(s):

1. Comdex Multimedia and Web Design Course Kit, Vikas Gupta & Kogent Solutions Inc. Dream Tech. Press, 2008.
2. Carolyn M Connally, Pagemaker7, Dream Tech, New Delhi, 2005.

Relationship Matrix for Course Outcomes, Programme Outcomes and Programme Specific Outcomes:

Semester	Code	Title of the Course					Hours	Credits			
IV	20UIT4NME2	DESK TOP PUBLISHING					2	2			
Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	✓	✓			✓	✓	✓	✓	✓		
CO2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CO3	✓	✓	✓	✓	✓	✓	✓	✓		✓	
CO4	✓	✓		✓	✓	✓	✓	✓	✓	✓	
CO5	✓	✓	✓			✓	✓		✓	✓	
Number of matches (✓) = 42, Relationship: High											

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

Prepared by:

Checked by:

HOD: