Faculty of Engineering & Technology

KAKATIYA UNIVERSITY, WARANGAL-506 009

Department of Information Technology

B. Tech. (IT) VII SEMESTER

S. No.	Course Code	Course Title	Scheme of Instruction			Lecture hrs/week	Scheme of Examination		Credits
			L	T	P		CIE	SEE	
1	PE-III*	Professional Elective –III*	3	1	0	4	30	70	4
2	PE-IV*	Professional Elective – IV*	3	1	0	4	30	70	4
3	PE-V*	Professional Elective – V*	3	1	0	4	30	70	4
4	PE-VI*	Professional Elective –VI*	3	1	0	4	30	70	4
5	PE-III**	Professional Elective – III Lab**	0	0	3	3	25	50	1.5
6	PE-IV**	Professional Elective –IV Lab**	0	0	3	3	25	50	1.5
7	PW4108IT	Mini Project – II	-	-	3	3	25	50	1.5
		Total	**12**	**4**	**9**	**25**	**195**	**430**	**20.5**

*(PE-III) Professional Elective –III	
PE4101IT	Python

**(PE-III) Professional Elective – III Lab	
PE4109IT	Python Lab

**(PE-IV) Professional Elective –IV	
PE4102IT	Software Testing
PE4103IT	Object Oriented Analysis and Design

**(PE-IV) Professional Elective – IV Lab	
PE4110IT	Software Testing Lab
PE4111IT	Object Oriented Analysis and Design Lab

*(PE-V) Professional Elective –V	
PE4104IT	Artificial Intelligence
PE4105IT	Mobile Application Development

*(PE-VI) Professional Elective –VI	
PE4106IT	Cryptography& Information Security
PE4107IT	Big Data Analytics

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Department of Information Technology

B. Tech. (IT) VII SEMESTER
Professional Elective - III
PYTHON PROGRAMMING (PE4101IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT – I

Python -Introduction to Python, History, installation, Versions of python, tools for working with data in Python, Features of python, applications; Basic Syntax, Variables, expressions and Data Types, Working with Python: Numbers and String, Python Operators, Python General Programs, Input and output statements in python, reading data from keyboard, type conversions, Conditional Statements - if statements, if-else statement, nested if-else statement: Syntax and executions.

UNIT – II

Control Structures in Python:
Looping statements -For and For with else , For with range, While and While with Else , Syntax and executions. Control Statements - break, continue and pass – Syntax and executions.

Python Function: Design with functions: hiding redundancy, complexity, basic syntax , scope of variables, arguments and return value, formal vs actual arguments ,types of function, variable function arguments – default argument ,keyword argument ,arbitrary argument , recursion

UNIT – III

List, Tuples, Set and Dictionaries
Python List: Introduction, accessing List, List operations, Working with Lists, List functions and methods.
Python Tuple:- Introduction, accessing Tuple, operations on Tuple, Working with Tuple ,Functions and Methods.
Python Set - Introduction, accessing Set, Set operations, working with Set, Functions and Methods.
Python Dictionaries – Introduction, working with dictionaries, Properties, Functions. Dictionaries Operations, List Comprehension.

UNIT– IV

Python String Manipulations - Accessing String, Basic Operations, String slices, Functions and Method, String formatting.
Python Modules - Importing Modules, Math Module, Random Module, Packages-creation of packages, importing, Compositions.
Python file handling: Reading files, writing files, loading data, working with and saving data. Enumerate.

UNIT– **V**

Python Object-Oriented Programming: objects and classes, Encapsulation; Inheritance; Polymorphism, Exception and Error Handling, Regular Expression-match function, searching, Patterns, modifiers., High Order Functions - Lambda, Filter, Map, Reduce.
Creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colours layouts, nested frames, Database connection- Sqlite

TEXT BOOKS:
1. "Learning Python", Fifth Edition by Mark Lutz, Published by O'Reilly Media, ISBN: 978-1-449-35573-9.
2. Yashavant Kanetkar, Let Us Python (1 ed.), BPB Publishers, 2019. ISBN 978-9388511568.

REFERENCE BOOKS:
1. Chun, J Wesley, Core Python Programming, 2 nd Edition, Pearson, 2007 Reprint 2010. 4. Programming Python by Mark Lutz, O'Reilly
2. C. Dierbach, Introduction to Computer Science Using PYTHON: A Computational Problem-Solving Focus (1 ed.), Wiley, 2015. ISBN 978-8126556014. b)
3. Martin C. Brown, Python: The Complete Reference (1 ed.), McGraw-Hill, 2001. ISBN 978-0072127188.

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Department of Information Technology

B. Tech. (IT) VII SEMESTER

Professional Elective - IV
SOFTWARE TESTING (PE4102IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT – I

Introduction: Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs, Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UNIT – II

Transaction Flow Testing: Transaction flows, transaction flow testing techniques. Dataflow testing:- Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.

UNIT – III

Domain Testing:-domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.

UNIT – IV

Paths, Path products and Regular expressions : Path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection, Logic Based Testing Overview, decision tables, path expressions, kv charts, specifications.

UNIT – V

State, State Graphs and Transition testing: State graphs, good & bad state graphs, state testing, matrix of graph, relations, power of a matrix, node reduction algorithm.

TEXT BOOKS
1. Software Testing techniques – Boris Beizer, Dreamtech, second edition.

REFERENCE BOOKS:
1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing,3rd edition,P.C.Jorgensen,Aurbach Publications(Dist.by SPD).
3. Software Testing,N.Chauhan,Oxford University Press.
4. Introduction to Software Testing,P.Ammann&J.Offutt,Cambridge Univ.Press.
5. Effective methods of Software Testing, Perry, John Wiley, 2nd Edition, 1999.
6. Software Testing Concepts and Tools,P.Nageswara Rao, dreamtech Press.
7. Software Testing, M.G.Limaye, TMH.
8. Software Testing,S.Desikan,G.Ramesh,Pearson.
9. Foundations of Software Testing,D.Graham & Others,Cengage Learning.
10. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

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Department of Information Technology

B. Tech. (IT) VII SEMESTER

Professional Elective - IV
OBJECT ORIENTED ANALYSIS AND DESIGN (PE4103IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT – I

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT – II

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.
Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT – III

Basic Behavioral Modeling-I: Interactions, Interaction diagrams.
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT – IV

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.
Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

UNIT – V

Patterns and Frameworks, Artifact Diagrams. Case Study: The Unified Library application, ATM application.

TEXT BOOKS:
1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education 2nd Edition.
2. Object-Oriented Analysis and Design with the Unified Process By John W. Satzinger, Robert B Jackson and Stephen D Burd, Cengage Learning.

REFERENCE BOOKS:
1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY-Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.
4. Mark Priestley: Practical Object-Oriented Design with UML, TMH.
5. Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.
6. Object Oriented Analysis, Design and Implementation, B. Dathan, S. Ramnath, Universities Press.

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B. Tech. (IT) VII SEMESTER
Professional Elective - V
ARTIFICIAL INTELLIGENCE (PE4104IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks :30
3	1	0	4	External Marks :70

UNIT-I

Introduction to Artificial Intelligence: The AI problems, the underlying assumption, Historical Backdrop, What is Intelligence, The level of the model, Criteria for success.

Problems, Problem Spaces and Search: Defining the problem as a state space search, Production systems, Production system characteristics, Introduction to search strategies, Issues in the design of search programs, additional problems.

UNIT-II

Heuristic Search Techniques: Generate-and-Test, Hill climbing; simple & steepest; simulated Annealing, Best-first-search; A* Algorithm, Constraint satisfaction.

Knowledge Representation: Knowledge representations and mappings, Approaches to knowledge representation, Issues in knowledge representation.

UNIT-III

Predicate Logic: Introduction, Representing simple facts in logic, Computable functions and Predicates Unification, Resolution.

Representing Knowledge Using Rules: Procedural versus Declarative knowledge, Logic programming, Forward versus Backward Reasoning.

UNIT-IV

Symbolic Reasoning under Uncertainty: introduction to Nonmonotonic Reasoning, Logics for Nonmonotonic Reasoning, Implementation issues.

Game Playing: The MinMax Search procedure, Adding Alpha-Beta Cut-offs, Additional Refinements, Iterative Deepening.

UNIT-V

Planning: overview, An Example Domain: The Blocks World, Components of a Planning System.

Natural Language Processing: Introduction, Syntacting Processing, Semantic Analysis, Discourse and Pragmatic Processing, Statistical Natural Language Processing, Spell Checking.

REFERENCE BOOKS:

1. Elaine rich, Kevin knight and Shivashankar B Nair "Artificial Intelligence", Third Edition, McGraw-Hill, ISBN No: 978-0-07-008770-5, 2015.
2. Deepak Khemani, "A First Course in Artificial Intelligence", First Edition, McGraw Hill Education, ISBN No: 978-1259029981, 2013.
3. Patterson, "Introduction to Artificial Intelligence" First Edition, 2000, Pearson Education India, ISBN No: 978-8120307773, 2015.

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B.Tech. (IT) VII SEMESTER
Professional Elective - V
MOBILE APPLICATION DEVELOPMENT (PE4105IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT – I

Android Operating System: Android OS design and Features – Android development framework, SDK features, Installing and running applications on Eclipse platform, Creating AVDs, Types of Android applications, Best practices in Android programming, Android tools
Discussion on Android application components – Android Manifest file, Externalizing resources like values, themes, layouts, Menus etc, Resources for different devices and languages, Runtime Configuration Changes
What is Android Application Lifecycle – Activities, Activity lifecycle, activity states, monitoring state changes

UNIT – II

How to Create Android User Interface: Measurements–Device and pixel density independent measuringunits.
Layouts – Linear, Relative, Grid and Table Layouts.
Various components of User Interface (UI)– Editable and non-editable Text Views, Buttons, Radio and Toggle Buttons, Checkboxes, Spinners, Dialog and pickers.
Event Handling – Handling clicks or changes of various UI components.
Fragments& Life cycle– Creating fragments, Lifecycle of fragments, Fragment states, Adding fragments to Activity, adding, removing and replacing fragments with fragment transactions, interfacing between fragments and Activities, Multi-screen Activities

UNIT – III

Intents and Broadcasts: Intent – Using intents to launch Activities, Explicitly starting new Activity, Implicit Intents, Passing data to Intents, Getting results from Activities, Native Actions, using Intent to dial a number or to send SMS.
Broadcast Receivers and Notifications– Using Intent filters to service implicit Intents, Resolving Intent filters, finding and using Intents received within an Activity **Notifications** – Creating and Displaying notifications, Displaying Toasts

UNIT – IV

Persistent Storage: Files, Saving state and Preferences– Using application specific folders and files, creating files, reading data from files, listing contents of a directory Shared Preferences – Creating shared preferences, saving and retrieving data using Shared Preference
Introducing Android Databases – Introduction to SQLite database, creating and opening a database, creating tables, inserting retrieving and deleting data, Registering Content Providers, Using content Providers (insert, delete, retrieve and update)

UNIT – V

Advanced Topics: Alarms – Creating and using alarms.
Using Internet Resources – Connecting to internet resource, using download manager
 Location Based Services – Finding Current Location and showing location on the Map, updating location.
Publishing Android Applications, Using Eclipse for Android Development, Using the Android Emulator
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TEXT BOOKS:
1.Professional Android 4 Application Development, Reto Meier, Wiley India, (Wrox) , 2012
2.Android Application Development for Java Programmers, James C Sheusi, Cengage Learning, 2013

REFERENCE BOOKS:
1.Beginning Android 4 Application Development, Wei-Meng Lee, Wiley India (Wrox), 2013

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B.Tech. (IT) VII SEMESTER

Professional Elective - VI
CRYPTOGRAPHY AND INFORMATION SECURITY (PE4106IT)

	Teaching Scheme			Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT I

Security Attacks: Interruption, Interception, Modification and Fabrication, Security Services: Confidentiality, Authentication, Integrity, Non-repudiation, Access Control and Security Mechanisms, A model for Network Security.

UNIT II

Conventional Encryption: Principles, Feistel Cipher Model, Conventional encryption algorithms (DES, RC4 and B1owfish, cipher block modes of operation, location of encryption devices, key distribution, Approaches of Message Authentication, Secure Hash Functions and HMAC.

UNIT III

Public key cryptography principles, Euclid's Algorithm, Fennat's and Euler's Theorem, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management: Kerberos, X.509 Directory Authentication Service.

Unit IV

Email Security: Pretty Good Privacy (PGP) and S/MIME.
IP Security: Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security, Associations and Key Management.

UNIT V

Web Security: Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET). Intruders, Viruses and related threats, Firewall Design Principles, Trusted Systems, Intrusion Detection Systems.

TEXT BOOKS:
   1. Cryptography and Network Security by William Stallings 5th Edition, Pearson Education.
   2. Information Security, Principles and Practice by Mark Stamp, Wiley India.

REFERENCE BOOKS:
   1. Applied Cryptography by Bruce Schneier, 2007.
   2. Cryptography and Data Security, Denning D, Addson Wesley,1982.
   3. Cryptography and Network Security : Forouzan Mukhopadhyay, MC Graw Hill, 2″" Edition.

B. Tech. (IT) VII SEMESTER

Professional Elective - VI
BIG DATA ANALYTICS (PE4107IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 30
3	1	0	4	External Marks: 70

UNIT – I

Big Data Analytics: What is big data, History of Data Management; Structuring Big Data; Elements of Big Data; Big Data Analytics; Distributed and Parallel Computing for Big Data;
Big Data Analytics: What is Big Data Analytics, What Big Data Analytics Isn't, Why this sudden Hype Around Big Data Analytics, Classification of Analytics, Greatest Challenges that Prevent Business from Capitalizing Big Data; Top Challenges Facing Big Data; Why Big Data Analytics Important

UNIT – II

Understanding Analytics and Big Data: Comparing Reporting and Analysis, Types of Analytics; Points to Consider during Analysis; Developing an Analytic Team; Understanding Text Analytics;
Analytical Approach and Tools to Analyze Data: Analytical Approaches; History of Analytical Tools; Introducing Popular Analytical Tools; Comparing Various Analytical Tools.

UNIT – III

Understanding Map Reduce Fundamentals and HBase : The MapReduce Framework; Techniques to Optimize Map Reduce Jobs; Uses of MapReduce; Role of HBase in Big Data Processing; Storing Data in Hadoop : Introduction of HDFS, Architecture, HDFC Files, File system types, commands, org.apache.hadoop.io package, HDF, HDFS High Availability; Introducing HBase, Architecture, Storing Big Data with HBase , Interacting with the Hadoop Ecosystem; HBase in Operations- Programming with HBase; Installation, Combining HBase and HDFS;

UNIT – IV

Big Data Technology Landscape and Hadoop: NoSQL, Hadoop; RDBMS versus Hadoop; Distributed Computing Challenges; History of Hadoop; Hadoop Overview; Use Case of Hadoop; Hadoop Distributors; HDFC (Hadoop Distributed File System), HDFC Daemons, read, write, Replica Processing of Data with Hadoop; Managing Resources and Applications with Hadoop YARN.

UNIT – V

Social Media Analytics and Text Mining: Introducing Social Media; Key elements of Social Media; Text mining; Understanding Text Mining Process; Sentiment Analysis, Performing Social Media Analytics and Opinion Mining on Tweets

TEXT BOOKS:
1. Big Data and Analytics, Seema Acharya, Subhasinin Chellappan, Wiley publications.
2. Big Data, Black BookTM , DreamTech Press, 2015 Edition.
3. Business Analytics 5e , BY Albright |Winston

REFERENCE BOOKS:
1. Rajiv Sabherwal, Irma Becerra- Fernandez," Business Intelligence –Practice, Technologies and Management", John Wiley 2011.
2. Lariss T. Moss, Shaku Atre, "Business Intelligence Roadmap", Addison-Wesley It Service.
3. Yuli Vasiliev, "Oracle Business Intelligence: The Condensed Guide to Analysis and Reporting", SPD Shroff, 2012.

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B.Tech. (IT) VII SEMESTER

Professional Elective -III Lab
PYTHON PROGRAMMING LAB (PE4109IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 25
0	0	3	1.5	External Marks: 50

LIST OF EXPERIMENTS

Exercise:1 Basics

1. Running instructions in Interactive interpreter and a Python Script
2. Write a program to purposefully raise Indentation Error and Correct it

Exercise: 2 programs on operators & I/O operations.

1. Write a program that takes 2 numbers as command line arguments and prints its sum.
2. Implement python script to show the usage of various operators available in python language.
3. Implement python script to read person's age from keyboard and display whether he is eligible for voting or not.
4. Implement python script to check the given year is leap year or not.

Exercise 3: programs on basic control structures &loops.

1. Write a program for checking the given number is even or odd.
2. Using a for loop, write a program that prints the decimal equivalents of 1/2, 1/3, 1/4 ,.   1/10
3. Write a program for displaying reversal of a number.
4. Write a program for finding biggest number among 3numbers.
5. Write a program using a while loop that asks the user for a number, and prints a countdown from that number to zero.
6.   Develop a program that will read a list of student marks in the range 0 ... 50 and tell you how many students scored in each range of 10. how many scored 0 - 9, how many 10 -19, 20 - 29 ... and so on.

    Input:

            Enter list of Marks: 11 42 33 42 13 3 43

    Output:

            No of Students Between 1-10 : 1

             No of Students Between   11-20 : 2

             No of Students Between 21-30 : 0

             No of Students Between 31-40 : 1

             No of Students Between 41-50 : 1

Exercise 4: programs on Python Script.

1. Implement Python Script to generate first N natural numbers.
2. Implement Python Script to check given number is palindrome or not.
3. Implement Python script to print factorial of a number.
4. Implement Python Script to print sum of N natural numbers.
5. Implement Python Script to check given number is Armstrong or not.
6. Implement Python Script to generate prime numbers series up ton

Exercise5: programs on functions.

1. Define a function max_of_three() that takes three numbers as arguments and returns the largest of them.
2. Write a program which makes use of function to display all such numbers which are divisible by 7 but are not a multiple of 5, between 1000 and2000.
3. Write a python a program to demonstrate all types arguments in a function with examples.
4. Exercise programs on recursion & parameter passing techniques.
5. Define a function which generates Fibonacci series up to n numbers.
6. Define a function that checks whether the given number is Armstrong
7. Implement a python script for factorial of number by using recursion
8. Write function to compute gcd, lcm of two numbers

Exercise 6: programs on Lists, Sets, Tuple and Dictionary.

1. Finding the sum and average of given numbers using lists.
2. To display elements of list in reverse order.
3. Finding the minimum and maximum elements in the lists.
4. Write a function reverse to reverse a list. Without using the reverse function.
5. Python Program to Put Even and Odd elements in a List into Two Different Lists.
6. Python program to explain the various operations on Tuple.
7. Python Program to Count the Number of Vowels Present in a String using Sets
8. Python Program to Check Common Letters in Two Input Strings
9. Python Program that Displays which Letters are in the First String but not in the Second
10. Python Program to Add a Key-Value Pair to the Dictionary
11. Python Program to Concatenate Two Dictionaries Into One
12. Python Program to Check if a Given Key Exists in a Dictionary or Not

Exercise 7: programs on Strings, Modules and Files.

1. Implement Python Script to perform various operations on string using string libraries.
2. Implement Python Script to check given string is palindrome or not.
3. Write a program to count the numbers of characters in the string and store them in a dictionary data structure
4. Write a program to use split and join methods in the string.
5. Python Program to Detect if Two Strings are Anagrams
6. Python Program to Count the Number of Vowels in a String
7. Create a module with two functions one for finding Armstrong number, and second is for testing whether the given string is palindrome or not. Write a python application to import the above module some other application
8. Create a python package contains 2 modules of your name functions (minimum 2 functions in each module) and import the packages and modules in other application which perform some task.
9. Write Python script to display file contents.
10. Write Python script to copy file contents from one file to another.
11. Write a python program that accepts filename as an input from the user .Open the file and
12. Count the number of times a character appears in the file.

Exercise 8: Programs on OOPS, Exception Handling, GUI

1. Write a program that has a class Circle. Use a class variable to define the value of constant PI. Use this class variable to calculate area and circumference of a circle with specified radius.
2. Program to raise value error and handle using try-except.

3. Write a python program to validate given phone number is correct or not using regular expression
4. Create a student table in python and insert at leastt 5 records and display the all table entries
5. Write a python program to read group of words into a string and print the results as which words are ended with 'at' by using regular expression
6. Create a GUI application using tkinter where it will accept two numbers and when click the submit button the addition of 2 numbers will be display in sum filed.
7. Design a GUI application using tkinter, it look likes
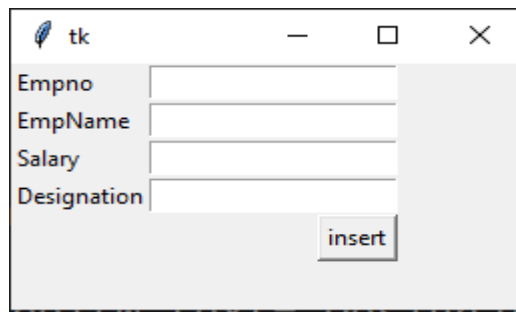
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Department of Information Technology

B.Tech. (IT) VII SEMESTER

Professional Elective-IV Lab

SOFTWARE TESTING LAB (PE4110IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 25
0	0	3	1.5	External Marks: 50

LIST OF EXPERIMENTS

1. Write a program to demonstrate the working of Do...while construct and write the test cases.
2. Write a program to demonstrate the working of while construct and write the test cases.
3. Write a program to demonstrate the working of If…else construct and write the test cases.
4. Write a program to demonstrate the working of for loop and write the test cases.
5. Write a program to demonstrate the working of If condition and write the test cases.
6. Write a program to demonstrate the working of Switch construct and write the test cases
7. Write the test cases for any ATM Application
8. Write the test cases for any e-ticketing Application
9. GUI checkpoint for window.
10. GUI checkpoint for multiple objects
11. Bitmap checkpoint for screen area
12. Bitmap checkpoint for window
13. Database checkpoint for Default check
14. Database checkpoint for runtime record check

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B. Tech. (IT) VII SEMESTER

Professional Elective IV Lab

OBJECT ORIENTED ANALYSIS AND DESIGN LAB (PE4111IT)

Teaching Scheme				Examination Scheme
L	T	P	C	Internal Marks: 25
0	0	3	1.5	External Marks: 50

LIST OF EXPERIMENTS

1. To develop a problem statement
2. To develop IEEE standard SRS document.
3. To identify Use Cases and develop Use Case model.
4. To identify Classes and develop Class diagram.
5. To develop Activity diagram.
6. To develop State chart diagram.
7. To develop Component diagram.
8. To develop Deployment diagram.
   Above tasks are to be implemented for following applications
   Case Study 1: ATM System
   Case Study 2: Library Information System
   Case Study 3: Online Course reservation System
   Case Study 4: E-Trading
   Case Study 5: E-Ticketing
9. Forward Engineer Class diagrams for the following.
   (a) Generalization Relationship Example
   (b) Interface Example
10. Reverse Engineer
    (a) Aggregation Relationship Example
    (b) Generalization Relationship Example
    (c) Interface Example.