



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

Accredited NAAC with "A" grade, ISO 9001:2015 Certified Institution,
Approved by AICTE New Delhi & Affiliated to JNTUK, Kakinada
L.B. Reddy Nagar, Mylavaram-521 230. Krishna Dist, Andhra Pradesh, INDIA
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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PROGRAM	: B.Tech., IV-Sem., IT, R17 Regulations
ACADEMIC YEAR	: 2018-19
COURSE NAME & CODE	: DISCRETE MATHEMATICAL STRUCTURES – 17CI03
L-T-P STRUCTURE	: 2-2-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: Dr. B. Rama Devi, Associate Professor
PRE-REQUISITE:	Basic Mathematical Knowledge

COURSE OBJECTIVE:

Perform the operations associated with sets, functions, and relations. Relate practical examples to the appropriate set, function, or relation model, and interpret the associated operations and terminology in context. Use formal logic proofs and/or informal but rigorous logical reasoning to, for example, predict the behavior of software or to solve problems such as puzzles.

COURSE OUTCOMES (CO): At the end of the course, the student will be able to

- CO1:** Outline basic proofs for theorems using the techniques of - direct proofs, example, Proof by contradiction and mathematical induction.
- CO2:** Illustrate by examples the basic terminology of functions, relations, sets and Demonstrate knowledge of their associated operations.
- CO3:** Designing Network application, data structures using Graph terminology..
- CO4:** Apply the graph algorithms for routing and scheduling in different operating systems.
- CO5:** Construct compilers, error detection code, solve practical applications with the use of basic Counting principles of permutations, combinations, inclusion/exclusion principle and the Pigeonhole methodology.

COURSE ARTICULATION MATRIX (Correlation between COs & POs, PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3			-	-	-	-	-	-	-	-	2	-	-
CO2	3	3	1	2	-	-	-	-	-	-	-	-	1	-	-
CO3	3	3	1	2	-	-	-	-	-	-	-	-	1	2	2
CO4	3	3	2	1	-	-	-	-	-	-	-	-	1	2	2
CO5	3	3	1		-	-	-	-	-	-	-	-	2	-	-

1- Slight(Low), 2 - Moderate(Medium), 3 - Substantial (High).

BOS APPROVED TEXT BOOKS:

- 1 Tremblay, Manohar, Discrete Mathematical Structures with Applications to Computer Science, TMH Publications.

BOS APPROVED REFERENCE BOOKS:

1. S.Santha, Discrete Mathematics, Cengage.
2. Thomas Koshy, Discrete Mathematics with Applications, Elsevier.
3. JK Sharma, Macmillan Discrete Mathematics, 2nd edition.
4. Chandrasekaran, Umapparvathi, Discrete Mathematics, PHI, 2010.
5. Ralph. P.Grimaldi, Ramana, Discrete and Combinational Mathematics, Pearson, 5th edition.
6. Mott, Kandel, Baker, Discrete Mathematics for Computer Scientists & Mathematicians, PHI, 2/e.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

Unit-I Mathematical Logic&Predicate Calculus.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Propositional Calculus:	1	26/11/18		TLM1	CO1	T1	
2.	Statements and Notations	1	28/11/18		TLM1	CO1	T1	
3.	Connectives, Truth Tables, Tautologies.	1	29/11/18		TLM1	CO1	T1	
4.	Equivalence of Formulas, Duality law	1	30/11/18		TLM1	CO1	T1	
5.	Tutorial-1	1	03/12/18		TLM3	CO1	T1	
6.	Tautological Implications, Normal Forms	1	05/12/18		TLM1	CO1	T1	
7.	Theory of inference for Statement Calculus	1	06/12/18		TLM1	CO1	T1	

8.	Consistency of Premises	1	07/12/18		TLM1	CO1		
9.	Indirect Method of Proof;	1	10/12/18		TLM1	CO1	T1	
10.	Tutorial-2	1	12/12/18		TLM3	CO1	T1	
11.	Predicatecalculus:Predicative Logic, Statement Functions,	1	13/12/18		TLM1	CO1	T1	
12.	Variables and Quantifiers, Free& Bound Variables	1	14/12/18		TLM1	CO1	T1	
13.	Inference theory for predicate calculus.	1	17/12/18		TLM1	CO1	T1	
14.	Assignment/Quiz - 1	1	19/12/18		TLM6	CO1	T1	
No. of classes required to complete UNIT-I		14			No. of classes taken:			

Unit-II Set Theory & Functions.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
15.	Introduction, Operations on Binary Sets.	1	20/12/18		TLM2	CO2	T1	
16.	Relations: Properties of Binary Relations.	1	21/12/18		TLM1	CO2	T1	
17.	Tutorial-3	1	24/12/18		TLM3	CO2	T1	
18.	Relation Matrix and Digraph	1	26/12/18		TLM1	CO2	T1	
19.	Operations on Relations	1	27/12/18		TLM2	CO2	T1	
20.	Partition and Covering	1	28/12/18		TLM2	CO2	T1	
21.	Transitive Closure, Equivalence	1	02/01/19		TLM3	CO2	T1	
22.	Compatibility and Partial Ordering Relations.	1	03/01/19		TLM2	CO2	T1	
23.	Hasse Diagrams.	1	04/01/19		TLM2	CO2	T1,R1	
24.	Functions: Bijective Functions, Composition of Functions.	1	07/01/19		TLM2	CO2	T1,R1	
25.	Tutorial-4	1	09/01/19		TLM3	CO2	T1	
26.	Inverse Functions, Permutation Functions	1	10/01/19		TLM2	CO2	T1,R3	
27.	Recursive Functions	1	11/01/19		TLM4	CO2	T1,R2	
28.	Assignment/Quiz - 2	1	11/01/19		TLM6			
No. of classes required to complete UNIT-II		14			No. of classes taken:			

UNIT-III : Graph Theory I& Graph Theory II

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29.	Basic Concepts of Graphs, Sub graphs	1	28/01/19		TLM 1	CO3	T1	
30.	Matrix Representation of Graphs	1	30/01/19		TLM 1	CO3	T1	
31.	Tutorial-5	1	31/01/19		TLM 3	CO3	T1	
32.	Adjacency Matrices, Incidence Matrices	1	01/02/19		TLM3	CO3	T1	
33.	Isomorphic Graphs, Eulerian and	1	04/02/19		TLM4	CO3	T1,R1	

	Hamiltonian Graphs, Multi graphs.							
34.	Planar Graphs, Euler's Formula	1	06/02/19		TLM3	CO3	T1,R1	
35.	Graph Coloring, Chromatic Number	1	07/02/19		TLM4	CO3	T1	
36.	Tutorial-6	1	08/02/19		TLM 3	CO3	T1,R4	
37.	Trees, Spanning Trees: Properties	1	11/02/19		TLM 1	CO3	T1,R1	
38.	Algorithms for Spanning trees and Minimum Spanning Trees.	1	13/02/19		TLM3	CO3	T1,R1	
39.	Assignment/Quiz - 3	1	14/02/19		TLM6		T1	
No. of classes required to complete UNIT-III		11			No. of classes taken:			

UNIT-IV : Algebraic Structures & Combinatorics.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
40.	Algebraic Systems with one Binary Operation, Properties of Binary operations,	1	15/02/19		TLM1	CO4	T1	
41.	Semi groups and Monoids	1	18/02/19		TLM1	CO4	T1	
42.	Homomorphism of Semi groups and Monoids, Groups	1	20/02/19		TLM1	CO4	T1,R3	
43.	Abelian group, Cosets, Subgroups	1	21/02/19		TLM 2	CO4	T1,R3	
44.	Tutorial-7	1	22/02/19		TLM 3	CO4	T1	
45.	Basics of Counting, Permutations.	1	25/02/19		TLM2	CO4	T1	
46.	Permutations with Repetition of Objects, Restricted Permutations.	1	27/02/19		TLM1	CO4	T1	
47.	Combinations, Restricted Combinations.	1	28/02/19		TLM1	CO4	T1,R2	
48.	Pigeonhole Principle and its Application,	1	01/03/19		TLM1	CO4	T1,R3	
49.	Tutorial-8	1	06/03/19		TLM3	CO4	T1	
50.	Binomial Theorem ,Binomial and Multinomial Coefficients.	1	07/03/19		TLM1	CO4	T1	
51.	Assignment/Quiz - 4	1	08/03/19		TLM6			
No. of classes required to complete UNIT-IV		12			No. of classes taken:			

UNIT-V: Recurrence Relations.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
52.	Generating Function of Sequences.	1	11/03/19		TLM1	CO5	T1	
53.	Calculating Coefficient of Generating Functions.	1	13/03/19		TLM1	CO5	T1	
54.	Recurrence Relations.	1	14/03/19		TLM1	CO5	T1,R2	
55.	Formulation as Recurrence Relations.	1	15/03/19		TLM 1	CO5	T1	
56.	Solving linear homogeneous recurrence Relations by	1	18/03/19		TLM 2	CO5	T1	

	substitution.							
57.	Generating functions.	1	20/03/19		TLM 2	CO5	T1,R2	
58.	Tutorial-8	1	21/03/19		TLM2		T1	
59.	The Method of Characteristic Roots.	1	22/03/19		TLM 3	CO5		
60.	Solving Inhomogeneous Recurrence Relations	1	25/03/19		TLM 1	CO5	T1,R2	
61.	Revision for unit-5	1	27/03/19					
62.	Assignment / Quiz - 5	1	28/03/19		TLM 6	CO5	T1,R2	
No. of classes required to complete UNIT-V		11			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
63.		1	29/03/19		TLM1		R4,R5	

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	26/11/2018	12/01/2019	7W
I Mid Examinations	18/01/2019	25/01/2019	1W
II Phase of Instructions	28/01/2019	30/03/2019	9W
II Mid Examinations	01/04/2019	06/04/2019	1W
Preparation and Practicals	08/04/2019	20/04/2019	2W
Semester End Examinations	22/04/2019	04/05/2019	2W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/ Quiz – 1	1	A1=5
Assignment/ Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment/Quiz Marks: $A=(A1+A2+A3+A4+A5)/5$	1,2,3,4,5	A=5

Evaluation of Mid Marks: $B=75\%$ of $\text{Max}(B1,B2)+25\%$ of $\text{Min}(B1,B2)$	1,2,3,4,5	B=20
Evaluation of Mid Marks: $C=75\%$ of $\text{Max}(C1,C2)+25\%$ of $\text{Min}(C1,C2)$	1,2,3,4,5	C=10
Attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	A+B+C+D=40
Semester End Examinations	1,2,3,4,5	E=60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1:	Pursue a successful career in the area of Information Technology or its allied fields.
PEO2:	Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.
PEO3:	Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.
PEO4:	Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs)

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a

	member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Graduate of the Information Technology will have the ability to

PSO1	Organize, Analyze and Interpret the data to extract meaningful conclusions.
PSO2	Design, Implement and Evaluate a computer-based system to meet desired needs.
PSO3	Develop IT application services with the help of different current engineering tools.

	Course Instructor	Module Coordinator	HOD
Signature			
Name of the Faculty	Dr.B.RamaDevi	Dr.B.RamaDevi	Dr.D.NagaRaju



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L B Reddy Nagar, Mylavaram, Krishna District, Andhra Pradesh--521 230.

COURSE HANDOUT

Part-A

PROGRAM	:	B.TECH. (IT), IV-SEMESTER
ACADEMIC YEAR	:	2018-2019
COURSE CODE&NAME	:	17CI06 & COMPUTER ARCHITECTURE
L-T-P STRUCTURE	:	2-2-0
COURSE CREDITS	:	3
COURSE INSTRUCTOR	:	Dr. B. SRINIVASA RAO
PRE-REQUISITES	:	DIGITAL LOGIC DESIGN (DLD)

COURSE EDUCATIONAL OBJECTIVES (CEOs):

In this course student will:

Understand the basic functional modules of a computer system and their interconnection mechanism, Understand the data path and control path organization in a general purpose CPU, Get the design knowledge of main memory & cache memory systems, Explore the methods of communication between CPU & I/O devices. A case study on standard I/O interfaces.

COURSE OUTCOMES (COs):

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

- CO1: Identify the sequence of micro operations in the execution of one macro instruction and thereby gain the concepts of control steps, Instruction cycle, Register structure of CPU, Types of micro operations and RTL.
- CO2: Analyze the internal organization of CPU for performing Integer Arithmetic, Floating Point Arithmetic and logical operations.
- CO3: Understand the features of hardwired and micro programmed control units leading to the comparative study of control path organization in these types.

CO4: Analyze the memory hierarchy system and performance improvement by cache memory organization and its principles.

CO5: Analyze the communication methods of I/O devices and standard I/O interfaces.

Course Articulation Matrix (Correlation between COs & POs, PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	1		2											2	
CO2			3											2	
CO3	2		2											2	
CO4			2											2	
CO5			2											2	

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put **'-'**

1- Slight (Low), **2** –Moderate (Medium), **3** - Substantial (High).

BOS APPROVED TEXT BOOKS:

T1: M. Morris Mano, "Computer Systems Architecture", Pearson Education publishers, 3rd edition, 1992

T2: Carl Hamacher, ZvonkoVranesic, SafwatZaky, "Computer Organization", TMH publications, 5th edition, 2002.

BOS APPROVED REFERENCE BOOKS:

R1: William Stallings, "Computer Organization and Architecture", Pearson/PHI publishers, 6th edition, 2004.

R2: Andrew S. Tanenbaum, "Structured Computer Organization", Pearson/PHI publishers, 4th edition, 2005.

R3: Sivarama P. Dandamudi, "Fundamentals or Computer Organization and Design", Springer publishers, 1st edition, 2003.

R4: John D Carpinelli, "Computer Systems Organization and Architecture", Pearson Education, 1st edition, 2001.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-A/B/C

UNIT-I: Basic Computer Organization and Design

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Block Diagram of a Computer, Basic Functional Units of a Computer	2	27-11-2018		TLM1&2	1	1 & 2	
2.	Computer Architecture Models	3	29-11-2018		TLM1&2	1	1 & 2	
3.	Internal Organization of a Central Processing Unit	1	30-11-2018		TLM1&2	1	1 & 2	
4.	Register Structure	1	04-12-2018		TLM1&2	1	1 & 2	
5.	Introduction to Sequence of Micro operations	1	06-12-2018		TLM1&2	1	1 & 2	
6.	Introduction to Control steps & Register Transfer language(RTL)	1	07-12-2018		TLM1&2	1	1 & 2	
7.	Classification of Micro operations	1	11-12-2018		TLM1&2	1	1 & 2	
8.	Arithmetic & Logic Micro Operations	1	12-12-2018		TLM1&2	1	1 & 2	
9.	Shift Micro Operations	1	13-12-2018		TLM1&2	1	1 & 2	
10.	Instruction cycle Instruction Set	1	14-12-2018		TLM1&2	1	1 & 2	
11.	Basic Computer Instructions	1	18-12-2018		TLM1&2	1	1 & 2	
12.	Tutorial - 1	1	19-12-2018		TLM3	1	1 & 2	
13.	Assignment / Quiz - 1	1	20-12-2018		TLM6	1	1 & 2	
14.	Tutorial - 2	1	26-12-2018		TLM3	1	1 & 2	
No. of classes required to complete UNIT-I		17			No. of classes taken:			

UNIT-II: Central Processing Unit

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
15.	Instruction formats & Addressing modes	1	26-12-2018		TLM1&2	2	1 & 2	
16.	Example for Addressing modes, Data Transfer and	1	27-12-2018		TLM1&2	2	1 & 2	

	Manipulation Instructions							
17.	Logical Instructions, Program control Instructions,	1	28-12-2018		TLM1&2	2	1 & 2	
18.	Data Representation	1	02-01-2019		TLM1&2	2	1 & 2	
19.	TUTORIAL-3	1	03-01-2019		TLM3	2	1 & 2	
20.	Addition and Subtraction	1	04-01-2019		TLM1&2	2	1 & 2	
21.	Multiplication Algorithms	1	05-01-2019		TLM1&2	2	1 & 2	
22.	Booth Multiplication Algorithm	1	06-01-2019		TLM1&2	2	1 & 2	
23.	Division Algorithms	1	07-01-2019		TLM1&2	2	1 & 2	
24.	Floating Point Arithmetic operations	1	09-01-2019		TLM1&2	2	1 & 2	
25.	TUTORIAL-4 & ASSIGNMENT-2	1	11-01-2019		TLM3&6	2	1 & 2	
No. of classes required to complete UNIT-II		11			No. of classes taken:			

UNIT-III: Control Unit

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
26.	Control Memory	2	31-01-2019		TLM1&2	3	1 & 2	
27.	Hard wired control	2	01-02-2019		TLM1&2	3	1 & 2	
28.	Micro programmed control	2	05-02-2019		TLM1&2	3	1 & 2	
29.	Micro Instruction Format	1	06-02-2019		TLM1&2	3	1 & 2	
30.	TUTORIAL-5	1	07-02-2019		TLM3	3	1 & 2	
31.	Address Sequencing	1	08-02-2019		TLM1&2	3	1 & 2	
32.	Design of Control Unit.	1	12-02-2019		TLM1&2	3	1 & 2	
33.	TUTORIAL-6 & ASSIGNMENT-3	1	15-02-2019		TLM3	3	1 & 2	
No. of classes required to complete UNIT-III		11			No. of classes taken:			

UNIT-IV: Memory Organization

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
34.	Memory Hierarchy	1	19-02-2019		TLM1&2	4	1 & 2	
35.	Primary Memory	2	20-02-2019		TLM1&2	4	1 & 2	
36.	Introduction to Secondary Memory	1	21-02-2019		TLM1&2	4	1 & 2	
37.	Associative Memory	1	22-02-2019		TLM1&2	4	1 & 2	
38.	TUTORIAL-7	1	26-02-2019		TLM3	4	1 & 2	
39.	Cache Memory	1	28-02-2019		TLM1&2	4	1 & 2	
40.	Hit Ratio and Mapping Techniques	1	01-03-2019		TLM1&2	4	1 & 2	
41.	Example Problems	1	05-03-2019		TLM4	4	1 & 2	
42.	TUTORIAL-8 & ASSIGNMENT-4	1	12-03-2019		TLM3	4	1 & 2	
No. of classes required to complete UNIT-IV		10			No. of classes taken:			

UNIT-V: Input-Output Organization and Standard Input Output Interfaces

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
43.	Peripheral Devices	1	13-03-2019		TLM1&2	5	1 & 2	
44.	Modes of Transfer	1	15-03-2019		TLM1&2	5	1 & 2	
45.	Priority Interrupt	1	19-03-2019					
46.	Direct Memory Access	1	20-03-2019		TLM1&2	5	1 & 2	
47.	TUTORIAL-9	1	21-03-2019		TLM3	5	1 & 2	
48.	Input Output Processor, Input Output Interface	1	22-03-2019		TLM1&2	5	1 & 2	
49.	Synchronous data transfer and	1	23-03-2019					

	Asynchronous Data Transfer							
50.	Timing diagrams for Synchronous and Asynchronous data transfers	1	26-03-2019		TLM1&2	5	1 & 2	
51.	Serial communication	1	27-03-2019		TLM1&2	5	1 & 2	
52.	TUTORIAL-10 & ASSIGNMENT-5	1	28-03-2019		TLM3	5	1 & 2	
No. of classes required to complete UNIT-V		10			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome Cos	Text Book followed	HOD Sign
53.	Introduction to Small Computer System Interface (SCSI)	1	29-03-2019		TLM1&2	2	2	
54.	Universal Serial Bus(USB)	1	30-03-2019		TLM1&2	4	2	

Teaching Learning Methods						
TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD	
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo	
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study	

Part - C

EVALUATION PROCESS:

Evaluation Task	Units	Marks
Assignment- 1	1	A1=5
Assignment- 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment- 3	3	A3=5
Assignment- 4	4	A4=5
Assignment- 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=20

Evaluation of Online Quiz Marks: $C=75\%$ of $\text{Max}(C1,C2)+25\%$ of $\text{Min}(C1,C2)$	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	40
Semester End Examinations : E	1,2,3,4,5	60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

- PEO 1** Pursue a successful career in the area of Information Technology or its allied fields.
- PEO 2** Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.
- PEO 3** Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.
- PEO 4** Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication and team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs):

- PO1 Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO2 Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO3 Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- PO4 Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO5 Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- PO6 The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO7 Environment and sustainability:** Understand the impact of the professional engineering solution sin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO8 Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

- PO9 Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO10 Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO11 Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- PO12 Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO1** Organize, Analyze and Interpret the data to extract meaningful conclusions.
- PSO2** Design, Implement and Evaluate a computer-based system to meet desired needs.
- PSO3** Develop IT application services with the help of different current engineering tools.

	Course Instructor	Module Coordinator	HOD
Signature			
Name of the Faculty	Dr. B. Srinivasa Rao	Dr. D. Naga Raju	Dr. D. Naga Raju



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

Accredited NAAC with "A" grade, ISO 9001:2015 Certified Institution,
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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PROGRAM : B.Tech., IV-Sem., IT, R14 Regulations
ACADEMIC YEAR : 2018-19
COURSE NAME & CODE : OBJECT ORIENTED ANALYSIS AND DESIGN
L-T-P STRUCTURE : 3-0-0
COURSE CREDITS : 3
COURSE INSTRUCTOR : A.Sarvani

COURSE OBJECTIVE:

- CO1: Illustrate the basic building blocks of UML architecture and SDLC.
- CO2: Apply Basic and Advanced Structural Modeling for designing real time applications
- CO3: Design class and object diagrams that represent static aspects of a software system.
- CO4: Analyze dynamic aspects of a software system using use case interaction and activity diagrams
- CO5: Apply Advanced Behavioral and Architectural Models to real world problems

COURSE ARTICULATION MATRIX(Correlation between COs &POs ,PSOs):

CO	Statement At the end of the course, student will be able to	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
1	Illustrate the basic building blocks of UML architecture and SDLC	3	3	-	-	-	-	-	-	-	-	-	-	2	-	-	3
2	Apply Basic and Advanced Structural Modeling for designing real time applications	3	3	1	2	-	-	-	-	-	-	-	-	1	-	-	3
3	Design class and object diagrams that represent static aspects of a software system.	3	3	1	2	-	-	-	-	-	-	-	-	1	2	2	3
4	Analyze dynamic aspects of a software system using use case interaction and activity diagrams	3	3	2	1	-	-	-	-	-	-	-	-	1	2	2	3
5	Apply Advanced Behavioral and Architectural Models to real world problems	3	3	1	-	-	-	-	-	-	-	-	-	2	-	1	3

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put '-'
1- Slight(Low), **2** - Moderate(Medium), **3** - Substantial (High).

BOS APPROVED TEXT BOOKS:

1. Grady Booch, —Object Oriented Analysis & Design with Applications||,

2 Edition, Pearson Education 1999. 2. Ali Bahrami, —Object Oriented Systems Development – Using the Unified Modeling Language||. TGH International Editions, Computer Science Series, 1999.

BOS APPROVED REFERENCE BOOKS:

1. James Rumbaugh, Ivan Jacobson and Grady Booch, —Unified Modeling Language Reference Manual||, PHI, 1999.

2. Jacobson et al., the —Unified Software Development Process||. AW, 1999.

3. Tom Pender, —UML Bible||, John Wiley & Sons. 2003.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	The Object Model – Overview of Object Oriented system Development		27/11/18		TLM1	
2.	Object Basic – Object – Oriented Systems Development Life Cycle		28/11/18		TLM1	
3.	Object Basic – Object – Oriented Systems Development Life Cycle		1/12/18		TLM1	
4.	Identifying use cases: Introduction.		4/12/18		TLM1	
5.	Why Analysis is a Difficult Activity		5/12/18		TLM1	
6.	Business Object Analysis: Understanding the Business Layer		11/12/18		TLM1	
7.	Use-Case Driven Object-Oriented Analysis: The Unified Approach		12/12/18		TLM1	
8.	Business Process Modeling		15/12/18		TLM1	
9.	Use-Case Model, Developing Effective Documentation		18/12/18		TLM1	
10.	Use-Case Model, Developing Effective Documentation		19/12/18		TLM1	
No. of classes required to complete UNIT-I			No. of classes taken:			

UNIT-II

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
11.	Unified Modeling Language (UML): Introduction		22/12/18		TLM1	
12.	Static and Dynamic Models		25/12/18		TLM1	
13.	Why Modeling?		26/12/18		TLM1	
14.	Introduction to the Unified Modeling Language, UML Diagrams.		29/12/18		TLM1	

15.	UML Use Case Diagram- Use case descriptions		01/01/19		TLM1	
16.	Actors and actor descriptions		02/01/19		TLM1	
17.	Use case relationships: communication association, include		05/01/19		TLM1	
18.	Extend and Generalization, System Boundary,		08/01/19		TLM1	
19.	Case study Via Net Bank ATM.		09/01/19		TLM1	
No. of classes required to complete UNIT-II			No. of classes taken:			

UNIT-III

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
20.	Identifying Object Relationships, Attributes and Methods: Introduction, Associations, Super Sub Class Relationships		29/1/19		TLM1	
21.	A-Part-of Relationships-Aggregation, Class Responsibility, Identifying Attributes and Methods		30/1/19		TLM1	
22.	Class Responsibility, Defining Attributes by Analyzing Use Cases and Other UML Diagrams		2/2/19		TLM1	
23.	Object Responsibility: Methods and Messages		5/2/19		TLM1	
24.	Static Modeling: UML Class Diagram: Class, interface		6/2/19		TLM1	
25.	Package, Relationships between classes and other Notations of Class Diagram		12/2/19		TLM1	
26.	Package, Relationships between classes and other Notations of Class Diagram		13/2/19		TLM1	
27.	Case study ViaNet Bank ATM.		16/2/19		TLM1	
No. of classes required to complete UNIT-III			No. of classes taken:			

UNIT-IV

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
28.	UML Interaction Diagrams – UML Sequence Diagram: object, life line,		19/2/19		TLM1	
29.	Activation Bar, Types of Messages.		20/2/19		TLM1	
30.	UML Collaboration Diagram: object, object Connection		23/2/19		TLM1	
31.	Message with sequence numbers, case study ViaNet Bank ATM		26/2/19		TLM1	
32.	UML State-Chart Diagram: object State, Initial/Final State		27/2/19		TLM1	
33.	Simple/Complex Transitions		2/3/19		TLM1	

34.	UML Activity Diagram: Activity State, Transition		5/3/19		TLM1	
35.	Swim Lane, Initial state, Final State		6/3/19		TLM1	
36.	Synchronization Bar, Branching, case study Via Net Bank ATM		12/3/19		TLM1	
No. of classes required to complete UNIT-IV			No. of classes taken:			

UNIT-V

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
37.	Implementation Diagrams – Component Diagram: Component, Dependency and Interface,		13/03/19		TLM1	
38.	Deployment Diagram: Node, Communication Association, case study Via Net Bank ATM.		16/3/19		TLM1	
39.	Model Management: Packages and Model Organization		19/3/19		TLM1	
40.	UML Extensibility, UML Meta Model.		20/3/19		TLM1	
41.	Designing Classes: Introduction, The Object-Oriented Design Philosophy, UML Object Constraint Language		23/3/19		TLM1	
42.	Designing Classes: The Process, Class Visibility: Designing Well-Defined Public, Private, and Protected Protocols		26/3/19		TLM1	
43.	Designing Classes: Refining Attributes, Designing Methods and Protocols		27/3/19		TLM1	
44.	Packages and Managing Classes, case study Via Net Bank ATM.		30/3/19		TLM1	
No. of classes required to complete UNIT-V			No. of classes taken:			

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	26/11/2018	12/01/2019	7W
I Mid Examinations	18/01/2019	25/01/2019	1W
II Phase of Instructions	28/01/2019	30/03/2019	9W
II Mid Examinations	01/04/2019	06/04/2019	1W
Preparation and Practicals	08/04/2019	20/04/2019	2W
Semester End Examinations	22/04/2019	04/05/2019	2W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-I	1,2	C1=10
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-II	3,4,5	C2=10
Evaluation of Assignment/Quiz Marks: $A=(A1+A2+A3+A4+A5)/5$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B=75\% \text{ of Max}(B1,B2)+25\% \text{ of Min}(B1,B2)$	1,2,3,4,5	B=20
Evaluation of Online quiz marks: $C=75\% \text{ of Max}(C1,C2)+25\% \text{ of Min}(C1,C2)$	1,2,3,4,5	C=10
Attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	A+B+C+D=40
Semester End Examinations	1,2,3,4,5	E=60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

Course Instructor

Module Coordinator

HOD

COURSE HANDOUT

Part-A

PROGRAM : B.Tech., IV Sem., IT
ACADEMIC YEAR : 2018-19
COURSE NAME & CODE : PROBABILITY AND STATISTICS – 17FE08
L-T-P STRUCTURE : 3-2-0
COURSE CREDITS : 4
COURSE INSTRUCTOR : M.RAMI REDDY
COURSE COORDINATOR : M.RAMI REDDY
PRE-REQUISITES: None

COURSE EDUCATIONAL OBJECTIVES (CEOs) : In this course the students are able to understand the applications of probability distributions. They also learn various sample tests in testing the hypothesis and correlation, regression of a bi-variate data.

COURSE OUTCOMES (COs): At the end of the course, the student will be able to

CO1: Predict various probabilistic situations based on various laws of probability and random variables.

CO2: Distinguish among the criteria of selection and application of Binomial, Poisson, Normal and Exponential distributions.

CO3: Estimate the point and interval estimators of mean and proportion for the given Sample data.

CO4: Apply various sample tests like Z-test, t-test, F-test and χ^2 -test for decision making regarding the population based on sample data.

CO5: Estimate the level of correlation, the linear relationship using the regression lines for the given bivariate data.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	2	-	-	-	-	-	-	-	2	-	-	-
CO2	3	2	2	3	-	-	-	-	-	-	-	2	-	-	-
CO3	3	2	2	2	-	-	-	-	-	-	-	2	-	-	-
CO4	3	3	3	3	-	-	-	-	-	-	-	2	-	-	-
CO5	3	2	2	3	-	-	-	-	-	-	-	2	-	-	-

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put '-'
1- Slight (Low), **2** – Moderate (Medium), **3** - Substantial (High).

BOS APPROVED TEXT BOOKS:

- T1** Miller & Freund's "Probability and Statistics for Engineers",8th edition. PHI, New Delhi,2011.
- T2** S.C.Gupta, V.K.Kapoor, "Fundamentals of Mathematical Statistics", 11thEdition, Sultan Chand and sons, New Delhi,2014.

BOS APPROVED REFERENCE BOOKS:

- R1** Jay L.Devore "Probability and Statistics for engineering and the sciences." , 8th edition, Cengage Learning india, 2012.
- R2** B.V. Ramana, "Higher Engineering Mathematics", 1st Edition, TMH, New Delhi, 2010.

Part-B**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I : Probability and Random Variables**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject, course outcomes	1	26-11-18		TLM1	---	---	
2.	Introduction to probability	1	27-11-18		TLM1	CO1	T1	
3.	Basic definitions, simple problems	1	29-11-18		TLM1	CO1	T1	
4.	Problem on addition theorem	1	30-11-18		TLM1	CO1	T1, ,T2	
5.	Conditional probability	1	01-12-18		TLM1	CO1	T1	
6.	Multiplication theorem, examples	1	03-12-18		TLM1	CO1	T1	
7.	Independent events, theorems	1	04-12-18		TLM1	CO1	T1	
8.	Problems on multiplication theorem	1	06-12-18		TLM1	CO1	T1, ,T2	
9.	Tutorial-1	1	07-12-18		TLM3	CO1	T1	
10.	Baye's theorem	1	10-12-18		TLM1	CO1	T1, ,T2	
11.	Problems on baye's theorem	1	11-12-18		TLM1	CO1	T1	
12.	Random variables, Mathematical Expections	1	13-12-18		TLM1	CO1	T1,T2	
13.	Problems on PMF	1	14-12-18		TLM1	CO1	T1,T2	
14.	Problems on PMF	1	15-12-18		TLM1	CO1	T1,T2	
15.	Problems on PDF	1	17-12-18		TLM1	CO1	T1,T2	
16.	Tutorial -2	1	18-12-18		TLM3	CO1	T1,T2	
No. of classes required to complete UNIT-I		16				No. of classes taken:		

UNIT-II : Probability Distributions

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly	
17.	Binomial Distribution : mean and variance	1	20-12-18		TLM1	CO2	T1		
18.	Problems on Binomial distribution	1	21-12-18		TLM1	CO2	T1,T2		
19.	Problems on Binomial distribution	1	22-12-18		TLM1	CO2	T1,T2		
20.	Fitting of binomial distribution	1	24-12-18		TLM1	CO2	T1,T2		
21.	Poisson distribution, mean and variance	1	27-12-18		TLM1	CO2	T1		
22.	Problems on Poisson distribution	1	28-12-18		TLM1	CO2	T1,T2		
23.	Fitting of poisson distributions	1	29-12-18		TLM1	CO2	T1,T2		
24.	Tutorial -3	1	31-12-18		TLM3	CO2	T1,T2		
25.	Normal distribution: mean, variance	1	03-01-19		TLM1	CO2	T1,T2		
26.	Problems on Normal Distribution	1	04-01-19		TLM1	CO2	T1,T2		
27.	Problems on Normal Distribution	1	05-01-19		TLM1	CO2	T1,T2		
28.	Exponential distribution: mean and variance	1	07-01-19		TLM1	CO2	T2		
29.	Moment Generating Functions	1	08-01-19		TLM1	CO2	T2		
30.	Moment Generating Functions	1	10-01-19		TLM1	CO2	T2		
31.	Tutorial-4	1	11-01-19		TLM3	CO2	T1,T2		
No. of classes required to complete UNIT-II		15			No. of classes taken:				

UNIT-III : Sampling Distribution & Estimation

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
32.	Sampling distribution ,definitions	1	28-01-19		TLM1	CO3	T1	
33.	Sampling distribution of mean, variance	1	29-01-19		TLM1	CO3	T1	
34.	Sampling distribution of mean, variance	1	31-01-19		TLM1	CO3	T1,T2	
35.	problems	1	01-02-19		TLM1	CO3	T1,T2	
36.	Problems on central limit theorem	1	02-02-19		TLM1	CO3	T2	

37.	Problems on central limit theorem	1	04-02-19		TLM1	CO3	T2	
38.	Sums and differences	1	05-02-19		TLM1	CO3	T1,T2	
39.	Tutorial-5	1	07-02-19		TLM3	CO3	T1,T2	
40.	Estimation	1	08-02-19		TLM1	CO3	T1,T2	
41.	Point and interval estimation	1	11-02-19		TLM1	CO3	T1,T2	
42.	Interval estimation of mean in large samples	1	12-02-19		TLM1	CO3	T1,T2	
43.	Interval estimation of proportion in large samples	1	14-02-19		TLM1	CO3	T1,T2	
44.	Interval estimation of mean in small samples	1	15-02-19		TLM1	CO3	T1,T2	
45.	Tutorial-6	1	16-02-19		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		14			No. of classes taken:			

UNIT-IV : Tests of Hypothesis

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
46.	Testing of Hypothesis , definitions	1	18-02-19		TLM1	CO4	T1,T2	
47.	Z-test for single mean	1	19-02-19		TLM1	CO4	T1,T2	
48.	Z-test for difference of means	1	21-02-19		TLM1	CO4	T1,T2	
49.	problems	1	22-02-19		TLM1	CO4	T1,T2	
50.	Z-test for single proportion	1	23-02-19		TLM1	CO4	T1,T2	
51.	Z-test for difference of proportions	1	25-02-19		TLM1	CO4	T1,T2	
52.	Tutorial-7	1	26-02-19		TLM3	CO4	T1,T2	
53.	t-test for single mean	1	28-02-19		TLM1	CO4	T1,T2	
54.	t-test for difference of means	1	01-03-19		TLM1	CO4	T1,T2	
55.	Paired t-test	1	02-03-19		TLM1	CO4	T2	
56.	problems	1	05-03-19		TLM1	CO4	T1,T2	
57.	F-test for population variances	1	07-03-19		TLM1	CO4	T1,T2	
58.	χ^2 test for goodness of fit	1	08-03-19		TLM1	CO4	T2	
59.	χ^2 test for independence of attributes	1	11-03-19		TLM1	CO4	T2	
60.	problems	1	12-03-19		TLM1	CO4	T2	

61.	Tutorial-8	1	14-03-19		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		16			No. of classes taken:			

UNIT-V : Correlation & Regression

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
62.	Simple Bi-variate Correlation	1	15-03-19		TLM1	CO5	T1	
63.	Problems on Pearson's Correlation	1	16-03-19		TLM1	CO5	T1,T2	
64.	Problems	1	18-03-19		TLM1	CO5	T1,T2	
65.	Regression lines	1	19-03-19		TLM1	CO5	T2	
66.	Problems on Regression lines	1	22-03-19		TLM1	CO5	T1,T2	
67.	Properties of Regression coefficients	1	23-03-19		TLM1	CO5	T1,T2	
68.	Problems on Regression coefficients	1	25-03-19		TLM1	CO5	T1,T2	
69.	Tutorial-9	1	26-03-19		TLM3	CO5	T1,T2	
70.	Problems on rank Correlation	1	28-03-19		TLM1	CO5	T2	
71.	Problems on repeated ranks	1	29-03-19		TLM1	CO5	T2	
72.	Tutorial-10	1	30-03-19		TLM3	CO5	T1,T2	
No. of classes required to complete UNIT-V		11			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
73.	Axioms of probability, results	1	29-11-18		TLM1	CO1	T2	
74.	Bivariate frequency correlation coefficient.	1	16-03-19		TLM1	CO1	T2	

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

Part - C

EVALUATION PROCESS:

Evaluation Task	Units	Marks
Assignment– 1	1	A1=5
Assignment– 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment– 3	3	A3=5
Assignment– 4	4	A4=5
Assignment– 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=20
Evaluation of Online Quiz Marks: $C = 75\% \text{ of Max}(C1, C2) + 25\% \text{ of Min}(C1, C2)$	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	40
Semester End Examinations : E	1,2,3,4,5	60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields.

PEO 2: Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.

PEO 3: Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.

PEO 4: Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs)

Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES(PSOs):-

1. Organize, Analyze and interpret the data to extract meaningful conclusions.
2. Design, Implement and evaluate a computer-based system to meet desired needs.
3. Develop IT application services with the help of different current engineering tools.

Course Instructor	Course Coordinator	Module Coordinator	HOD



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
L.B.REDDY NAGAR, MYLAVARAM – 521 230
Lesson Plan

SUBJECT : Professional Ethics & Human Values (17PD03)

Branch & Year: IT - II

FACULTY : P. SIVA REDDY

Designation : Asst. Professor

Semester: II

A.Y: 2018-19

S No.	Date as per Academic Calendar	Content	Actual date of completion	TLM	Learning outcome	Text Book Followed
UNIT-I: ETHICS						
1.	27.11.2018	Introduction about engineering ethics		TLM 1	CO 1	
2.	29.11	Senses of engineering ethics		TLM 2	CO 1	
3.	01.12.2018	Variety of moral issued		TLM 1	CO 1	
4.	04.12	Moral dilemmas moral autonomy		TLM 2	CO 1	
5.	06.12	Kohlberg's theory		TLM 1	CO 1	
6.	08.12	Gilligan theory		TLM 2	CO 1	
7.	11.12	Comparison of Kohlberg's theory and Gilligan theory		TLM 1	CO 1	
8.	13.12	Consensus and controversy		TLM 2	CO 1	
9.	15.12	Models of professional roles about right action self interest		TLM 1	CO 1	
10	18.12	Customs and religion uses of ethical theories		TLM 2	CO 1	
	20	UNIT-II: HUMAN VALUES				
11	20.12	Introduction about Values		TLM 1	CO 2	
12	22.12	Morals ethics and Values		TLM 2	CO 2	
13	27.12	Morals ethics and Values		TLM 1	CO 2	
14	29.12	Integrity Work ethics		TLM 2	CO 2	
15	03.01.2019	Service Learning		TLM 1	CO 2	
16	05.01	Civic Virtue		TLM 2	CO 2	
17	08.01	Respect for others ,Living peacefully		TLM 1	CO 2	
18	10.01	Caring, Sharing ,Honesty, Courage		TLM 2	CO 2	
19	12.01	Valuing time Cooperation, Commitment		TLM 1	CO 2	
20	15.01	Empathy, Self confidence character, Spirituality		TLM 2	CO 2	
21	17.01	Review the entire unit		TLM 1	CO 2	
22	18.01 to 25.01 Mid 1 exams					
23	UNIT- III: ENGINEERING AS SOCIAL EXPERIMENTATION					
24	29.01	Engineering as experimentation introduction		TLM 1	CO 3	
25	31.01	Professional roles		TLM 2	CO 3	
26	02.02	Customs and religion uses of ethical theories		TLM 1	CO 3	
27	05.02	Ethical theories		TLM 2	CO 3	
28	07.02	Code of ethics- sample		TLM 1	CO 3	
29	09.02	Engineering as experimentation introduction		TLM 2	CO 3	



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FACULTY : P. SIVA REDDY

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Semester: II

A.Y: 2018-19

30	12.02	Engineering Projects VS. Standard Experiments		TLM 1	CO 3	
31	14.02	Engineers as responsible experimenters		TLM 2	CO 3	
32	16.02	Codes of ethics - Industrial Standards		TLM 1	CO 3	
33	UNIT-IV: SAFETY & RESPONSIBILITIES					
34	19.02	Introduction about Safety, and rights		TLM 1	CO 4	
35	21.02	Safety and risk		TLM 2	CO 4	
36	23.02	Assessment of safety and risk		TLM 1	CO 4	
37	26.02	Risk benefit analysis and reducing risk		TLM 2	CO 4	
38	28.02	Three Mile Island and Chernobyl case study		TLM 1	CO 4	
39	02.03	Three Mile Island and Chernobyl case study		TLM 2	CO 4	
40	07.03	Collegiality and loyalty		TLM 1	CO 4	
41	09.03	Respect for authority, collective bargaining		TLM 2	CO 4	
42	12.03	Confidentiality- Conflicts of interest		TLM 1	CO 4	
43	14.03	Unit –V GLOBAL ISSUES- sample code of Ethics		TLM 2	CO 5	
44	16.03	Multinational Corporation's- Environmental ethics-computer ethics		TLM 1	CO 5	
45	19.03	Weapon development- & as managers		TLM 2	CO 5	
46	21.03	Weapon development- & as managers		TLM 1	CO 5	
47	23.03	Engineers as managers consulting engineers		TLM 2	CO 5	
48	26.03	Engineers as managers consulting engineers		TLM 1	CO 5	
49	28.03	Engineers as expert witnesses and advisors Moral leadership		TLM 2	CO 5	
50	30.03	Engineers as expert witnesses and advisors Moral leadership		TLM 1	CO 5	
51	01.04 to 06.04 Mid 2					

Faculty Signature

Head of the dept. signature

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi,

NAAC Accredited with 'A' grade, Certified by ISO 9001:2015)

L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., IV-Semester
ACADEMIC YEAR : 2018-19
COURSE NAME & CODE : PYTHON PROGRAMMING LAB – 17CI62
L-T-P STRUCTURE : 0-0-2
COURSE CREDITS : 1
COURSE INSTRUCTOR : Mr.K.PURUSHOTTAMA RAO
PRE-REQUISITE: C Programming

COURSE OBJECTIVE: Python course leads the students from the basics of writing and running Python scripts to more advanced features such as file operations, sets, working with binary data, and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output formatting.

COURSE OUTCOMES (CO)

At the end of the course, the student will be able to:

CO1: Identify various data structures available in Python and apply them in solving computational problems.

CO2: Design and implement programs to process data.

CO3: Explore the usage of exception handling and database interaction.

COURSE ARTICULATION MATRIX (Correlation between Cos & POs, PSOs):

Course Code	COs	Programme Outcomes												PSOs			
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
17CI60	CO1	3	3	3	1	3									3	1	
	CO2	3	3	3	1	3									3	1	
	CO3	3	3	3	1	3									3	1	
	CO4								2	2	2						
		1 = Slight (Low)			2 = Moderate (Medium)						3-Substantial(High)						

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put '-'
1- Slight (Low), **2** – Moderate (Medium), **3** - Substantial (High).

S.No.	Programs to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Python Interpreter	2	26.11.2018/ 30.11.2018		TLM8	
2.	Simple Programs on Python Interactive Interpreter and Script mode	2	03.12.2018/ 07.12.2018		TLM4 / TLM5	
3.	Exercise programs on basic control structures and loops	2	10.12.2018/ 14.12.2018		TLM4 / TLM5	
4.	Exercise programs on operators and I/O operations	2	17.12.2018/ 21.12.2018		TLM4 / TLM5	
5.	Exercise programs on Python Scripts	2	24.12.2018/ 28.12.2018		TLM4 / TLM5	
6.	Exercise programs on Lists	2	31.12.2018/ 04.01.2019		TLM4 / TLM5	
7.	Exercise programs on Strings	2	07.01.2019/ 11.01.2019		TLM4 / TLM5	
8.	Exercise programs on Functions	2	28.01.2019/ 01.02.2019		TLM4 / TLM5	
9.	Exercise programs on Recursion	2	04.02.2019/ 08.02.2019		TLM4 / TLM5	
10.	Exercise programs on Parameter Passing Techniques	2	11.02.2019/ 15.02.2019		TLM4 / TLM5	
11.	Exercise programs on Tuples	2	18.02.2019/ 22.02.2019		TLM4 / TLM5	
12.	Exercise programs on Files	2	25.02.2019/ 01.03.2019		TLM4 / TLM5	
13.	Exercise programs on Searching and Sorting	2	04.03.2019/ 08.03.2019		TLM4 / TLM5	
14.	Exercise programs on Exception handling	2	11.03.2019/ 15.03.2019		TLM4 / TLM5	
15.	Revision on Programs	2	18.03.2019/ 22.03.2019		TLM4 / TLM5	
16.	Internal Lab Exam	2	25.03.2019/ 29.03.2019			

Teaching Learning Methods					
TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	26-11-2018	12-01-2019	7W
I Mid Examinations	18-01-2019	25-01-2019	1W
II Phase of Instructions	28-01-2019	30-03-2019	9W
II Mid Examinations	01-04-2019	06-04-2019	1W
Preparation and Practicals	08-04-2019	20-04-2019	2W
Semester End Examinations	22-04-2019	04-05-2019	2W

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

Graduates of Information Technology programme will be:

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields.

PEO 2: Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.

PEO 3: Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.

PEO 4: Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the **engineering and management principles and apply these to one's own work, as a member and leader** in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

Graduate of the Information Technology will have the ability to:

1. Organize, Analyze and Interpret the data to extract meaningful conclusions.
2. Design, Implement and Evaluate a computer-based system to meet desired needs.
3. Develop IT application services with the help of different current engineering tools.

Course Instructor
K.Purushottama Rao

Module Coordinator
Dr. S.Naganjaneyulu

HOD
Dr.D.Naga Raju

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING

DEPARTMENT OF INFORMATION TECHNOLOGY

(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi,

NAAC Accredited with 'A' grade, Certified by ISO 9001:2015)

L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., IV-Semester
ACADEMIC YEAR : 2018-19
COURSE NAME & CODE : PYTHON PROGRAMMING – 17CI04
L-T-P STRUCTURE : 2-2-0
COURSE CREDITS : 3
COURSE INSTRUCTOR : Mr.K. PURUSHOTTAMA RAO
PRE-REQUISITE: C Programming

COURSE OBJECTIVE: Python is a Modern Language useful for writing compact codes specifically for Programming in the area of Server-side Web Development, Data Analytics, AI and Scientific Computing as well as Production Tools and Game Programming

COURSE OUTCOMES (CO)

At the end of the course, the student will be able to:

CO1: Identify the basic python constructs with a view of using them in problem solving.

CO2: Apply control structures and use python lists in examples of problem solving.

CO3: Explore the utility of strings and functions in modular programming using python.

CO4: Apply tuple, set and file operations to organize the data in real world problems.

CO5: Analyze various searching and sorting techniques using python and apply exception Handling, database operations in python.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	1	-	3	-	-	-	-	1	-	2	3	-	1
CO2	3	2	1	-	3	-	-	-	-	1	-	2	3	-	1
CO3	3	2	1	-	3	-	-	-	-	1	-	2	3	-	1
CO4	3	2	1	-	3	-	-	-	-	1	-	2	3	-	1
CO5	3	2	1	-	3	-	-	-	-	1	-	2	3	-	1

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, **put '-'**
1- Slight (Low), **2** – Moderate (Medium), **3** - Substantial (High).

BOS APPROVED TEXT BOOKS:

- T1** Povel Solin, Martin Novak, "Introduction to Python Programming", NC Lab Public Computing, 2013.
- T2** Bill Lubanovic, "Introducing Python- Modern Computing in Simple Packages", O'Reilly Publication, 1st Edition, 2015.

BOS APPROVED REFERENCE BOOKS:

- R1** Jacob Fredslund, "Introduction to Python Programming", 2007.
- R2** Y.Daniel Liang, "Introduction to programming using python", Pearson, 2013.
- R3** R. Nageswara Rao, "Core python programming", Dreamtech, 2017.
- R4** Mark Summerfield, "Programming in Python 3" Pearson Education, 2nd Edition, 2010.
- R5** Magnus Lie Hetland, "Beginning Python – From Novice to Professional", APress Publication, 3rd Edition, 2017

COURSE DELIVERY PLAN (LESSON PLAN): Section-B**UNIT-I: Introduction to Python & Operators**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Programming	1	26.11.2018		TLM1	CO1	T1	
2.	History of Python	1	28.11.2018		TLM1	CO1	T1	
3.	Usage of Python Interpreter	1	30.11.2018		TLMS	CO1	T1	
4.	Structure of Python Program, Python Shell	1	01.12.2018		TLM1/ TLMS	CO1	T1	
5.	Indentation, Python Built-in types , Variables	1	03.12.2018		TLM1	CO1	T1	
6.	Assignment, Input-Output Statements	1	05.12.2018		TLM1	CO1	T1	
7.	Identifiers, keywords	1	07.12.2018		TLM1	CO1	R1	
8.	Literals , simple programs	1	10.12.2018		TLM3	CO1	T1	
9.	Tutorial - 1		12.12.2018					
10.	Arithmetic , Relational, Logical Operators, Assignment Operators	1	14.12.2018		TLM4 / TLM5	CO1	T1	
11.	Bitwise Operators, Increment/decrement operators	1	15.12.2018		TLM1	CO1	T1	
12.	Python Membership Operator, Python Identity Operator , Operator Precedence	1	17.12.2018		TLM1	CO1	T1	
13.	Assignment / Quiz - 1	1	19.12.2018		TLM1	CO1	T1	
14.	Tutorial - 2	1	21.12.2018		TLM6	CO1	T1	
No. of classes required to complete UNIT-I		13			No. of classes taken:			

UNIT-II: Control Structures & Python Lists

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
15.	Conditonal Statements – if, if-else, Nested If-else	1	22.12.2018		TLM1	CO2	T1	
16.	Jumping Statements – continue, break, pass, Python Loops – While loop	1	24.12.2018		TLM1	CO2	T1	

17.		1	26.12.2018		TLM1	CO2	T1
18.	for loop, Nested Loops with Programs	1	28.12.2018		TLM1	CO2	T1
19.	Mathematical functions & constants, Random Number functions	1	29.12.2018		TLM4 / TLM5	CO2	T1
20.	Tutorial – 3	1	31.12.2018		TLM1	CO2	T1
21.	Python List - concept , Creating and Accessing Elements	1	02.01.2019		TLM3	CO2	T1
22.	Updating Lists & Deleting Lists	1	04.01.2019		TLM1	CO2	T1
23.	Basic List operations , Reverse, Indexing	1	05.01.2019		TLM1	CO2	T1
24.	Slicing & Matrices	1	07.01.2019		TLM1	CO2	T1
25.	Built-in List Functions	1	09.01.2019		TLM1	CO2	T1
26.	Assignment / Quiz – 2/ Tutorial – 4	1	11.01.2019		TLM1	CO2	T1
No. of classes required to complete UNIT-II		13			No. of classes taken:		

UNIT-III: Python Strings & Functions

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
27.	Python Strings - concept , Slicing, Escape Characters	1	28.01.2019		TLM1	CO3	T1	
28.	String Special Operations, String formatting operator	1	30.01.2019		TLM1	CO3	T1	
29.	Triple quotes , raw string, Unicode strings	1	01.02.2019		TLM1	CO3	T1	
30.	Built-in string methods	1	02.02.2019		TLM1	CO3	T1	
31.	Tutorial - 3	1	04.02.2019		TLM3	CO3	T1	
32.	Defining and calling a function, Types of functions,	1	06.02.2019		TLM1	CO3	T1	
33.	Function arguments, Anonymous functions	1	08.02.2019		TLM1	CO3	T1	
34.	Global and Local variables, Recursion with programs	1	11.02.2019		TLM4 / TLM5	CO3	T1	
35.	Problem Solving	1	13.02.2019		TLM4 / TLM5	CO3	T1	
36.	Assignment / Quiz-3	1	15.02.2019		TLM6	CO3	T1	
No. of classes required to complete UNIT-III		10			No. of classes taken:			

UNIT-IV: Python Tuples , Sets & Files

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
37.	Python Tuples – Introduction	1	16.02.2019		TLM1	CO4	T1	
38.	Creating and Deleting Tuples Accessing Values in a Tuple	1	18.02.2019		TLM1	CO4	T1	
39.	Updating tuples , Delete tuple elements, Basic tuple operations	1	20.02.2019		TLM1	CO4	T1	
40.	Indexing , Slicing and Matrices	1	22.02.2019		TLM1	CO4	T1	
41.	Built-in tuple functions	1	23.02.2019		TLM3	CO4	T1	
42.	Tutorial - 4	1	25.02.2019		TLM1	CO4	T1	
43.	Sets-concepts, operations	1	27.02.2019		TLM1	CO4	T1	
44.	Files – Creating files, Operation on files	1	01.03.2019		TLM1	CO4	T1	
45.	Problem Solving	1	02.03.2019		TLM4 / TLM5	CO4	T1	
46.	Assignment / Quiz - 4	1	04.03.2019		TLM6	CO4	T1	
No. of classes required to complete UNIT-IV		09			No. of classes taken:			

UNIT-V: Searching & Sorting , Exception Handling & Database

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
47.	Searching Techniques – Linear Search, Binary Search	1	06.03.2019		TLM1	CO5	T1	
48.	Sorting Techniques – Bubble sort Selection Sort	1	08.03.2019		TLM1	CO5	T1	
49.	Insertion Sort, Merge Sort	1	11.03.2019		TLM1	CO5	T1	
50.	Heap Sort	1	13.03.2019		TLM1	CO5	T1	
51.	Exception Handling – Exceptions, Except clause , try	1	15.03.2019		TLM3	CO5	T1	
52.	Tutorial - 5	1	16.03.2019		TLM1	CO5	T1	
53.	Finally clause, user defined exceptions	1	18.03.2019		TLM1	CO5	T1	
54.	Database – introduction, connections, Executing queries	1	20.03.2019		TLM1	CO5	T1	
55.	Transactions , Handling errors	1	22.03.2019		TLM4 / TLM5	CO5	T1	
56.	Problem Solving	1	23.03.2019		TLM4 /			

					TLM5			
57.	Assignment / Quiz - 5	1	25.03.2019		TLM6	CO5	T1	
58.	Previous Question Papers Discussion	1	27.03.2019					
No. of classes required to complete UNIT-V		12			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
59.	Applications	1	29.03.2019		TLM2			
60.	Applications	1	30.03.2019		TLM2			

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	26-11-2018	12-01-2019	7W
I Mid Examinations	18-01-2019	25-01-2019	1W
II Phase of Instructions	28-01-2019	30-03-2019	9W
II Mid Examinations	01-04-2019	06-04-2019	1W
Preparation and Practicals	08-04-2019	20-04-2019	2W
Semester End Examinations	22-04-2019	04-05-2019	2W

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment -1	1	A1=5
Assignment -2	2	A2=5
Quiz-1	1,2	B1=10
I-Mid Examination	1,2	C1=20
Assignment -3	3	A3=5
Assignment -4	4	A4=5
Assignment --5	5	A5=5
Quiz-2	3,4,5	B2=10
II-Mid Examination	3,4,5	C2=20
Evaluation of Assignment Marks: $A=(A1+A2+A3+A4+A5)/5$	1,2,3,4,5	A=5
Evaluation of Quiz Marks: $B=75\% \text{ of Max}(B1,B2)+25\% \text{ of Min}(B1,B2)$	1,2,3,4,5	B=10

Evaluation of Mid Marks: $C=75\%$ of $\text{Max}(C1,C2)+25\%$ of $\text{Min}(C1,C2)$	1,2,3,4,5	C=20
Attendance	-	D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	A+B+C+D=40
Semester End Examinations	1,2,3,4,5	E=60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

Graduates of Information Technology programme will be:

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields.

PEO 2: Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.

PEO 3: Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.

PEO 4: Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- The engineer and society:** Apply reasoning informed by the contextual knowledge to

assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the **engineering and management principles and apply these to one's own work, as a member and leader** in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES

Graduate of the Information Technology will have the ability to:

1. Organize, Analyze and Interpret the data to extract meaningful conclusions.
2. Design, Implement and Evaluate a computer-based system to meet desired needs.
3. Develop IT application services with the help of different current engineering tools.

Course Instructor
K.Purushottama Rao

Module Coordinator
Dr.S.Naganjaneyulu

HOD
Dr.D.Naga Raju



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (Autonomous)

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PROGRAM : B.Tech.,IV-Sem., IT - R17 Regulation
ACADEMIC YEAR : 2018-19
COURSE NAME & CODE : Web Technologies Lab–17CI66
L-T-P STRUCTURE : 0-0-2
COURSE CREDITS : 2
COURSE INSTRUCTOR : Dr. S.Naganjaneyulu
PRE-REQUISITE : JAVA Programming

COURSE OBJECTIVE: The main objective of the course is, student will be familiar with client server architecture and able to develop interactive, dynamic web applications by using java technologies.

Course Outcomes: At the end of the course, the student will be able to:

CO1: Design and implement static & dynamic websites.

CO2: Create reusable components by using Java Beans.

CO3: Design and implement data driven web applications.

CO4: Improve individual / team work skills, communication & report writing skills with ethical values.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	3	-	3	-	-	-	-	-	-	2	3	3	3
CO2	3	2	3	-	3	-	-	-	-	-	-	2	3	3	3
CO3	3	2	3	-	3	-	-	-	-	-	-	2	3	3	3
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

1- Slight(Low), 2 - Moderate(Medium), 3 - Substantial (High).

Note: Enter Correlation Levels **1** or **2** or **3**. If there is no correlation, put '-'
1- Slight (Low), **2** – Moderate (Medium), **3** - Substantial (High).

Lab Program(s)		Tentative Date	Actual Date	Teaching Learning Methods	HOD Signature
1	a) Design a HTML program which includes all basic Text Formatting Tags.	28/11/28		TLM5	
	b) Design a HTML program by using the following Tags. i) Anchor (<A>) Tag. ii) <Marquee> and its Attributes. iii) Image() Tag and its Attributes	30/11/18		TLM5	
2	c) Design a HTML program by using various types of Lists				
	a) Design a HTML program by using Table concept	05/12/18		TLM5	
	b) Design a HTML program for Student Registration which includes all Form controls.	07/12/18		TLM5	
3	Design the following static web pages required for Online Book Store. • Home page: - The static home page must contains three pages • Top frame: - Logo and college name and links to homepage, login page, registration page, catalogue page and cart page. • Left frame: - At least four links for navigation which will display the data of respective links in the right frame. • Right frame: - The pages to links in the left frame must be loaded here; initially it contains the description of the website.	12/12/18		TLM5	
		14/12/18		TLM5	
4	Design a web page using CSS which includes the following: a) Use different Text, font styles	19/12/18		TLM5	
	b) Set background image for both the page and single elements on page. c) Control the repetition of image with background-repeat property d) Define style for links as a:link, a:active, a:hover, a:visited e) Work with layers.	21/12/18		TLM5	

5	<p>a) Develop JavaScript code to validate the following fields of a Registration page. 1) Text Field 2) Password Field 3) Email Field 4) Radio Button 5) Dropdown List 6) Checkbox.</p>	26/12/18 02/01/19		TLM5	
	<p>b) Design XML file which displays the following book details. 1) Title of book 2) Author name 3) Edition 4) Price Develop DTD/XML Schema file to validate the above XML file and display the details in a table (to do this use XSL).</p>	28/12/18 04/01/19		TLM5	
6	<p>a) Develop a sample Java Bean program by using setter and getter methods and access it from your simple Java program.</p>	09/01/19		TLM5	
	<p>b) Prepare a simple Java Bean component program and deploy it in BDK. c) Write the procedure to add start and stop button events to Juggler Bean in order to control it.</p>	11/01/19		TLM5	
7	<p>Develop a Java program to connect database by using JDBC and perform various DDL & DML commands.</p>	16/01/19 30/01/19		TLM5	
		01/02/19 08/02/19		TLM5	
8	<p>Write the Procedure to Install Apache Tomcat Web Server and deploy a static website & Access it. a) Install Apache Tomcat Server on port number 8080 b) Deploy html pages in a web server c) Access static website from a web server</p>	06/02/19		TLM5	
		15/02/19		TLM5	
9	<p>a) Develop a Servlet program to AUTHENTICATE User details</p>	13/02/19		TLM5	
		22/02/19		TLM5	

	b) Develop a Servlet program to implement Session Management concept.				
10	a) Develop a Servlet program to access Init parameter values from web.xml by using ServletContext interface. b) Develop a Servlet program to navigate from one Servlet page to another Servlet page using RequestDispatcher interface.	20/02/19		TLM5	
		01/03/19		TLM5	
11	Develop a Servlet program to access Database using JDBC.	27/02/19		TLM5	
		08/03/19		TLM5	
12	a) Develop a program to display & validate user credentials using useBean tag of JSP. b) Develop JSP program by using JSP implicit Objects.	06/03/19		TLM5	
		15/03/19		TLM5	
13	Design JSP program which does the following job: Insert the details of the 3 or 4 users who register with the web site by using registration form. Authenticate the user when he submits the login form using the user name and password from the database using JDBC.	13/03/19 20/03/19		TLM5	
		15/03/19 22/03/19		TLM5	
14	Design a Simple Struts application program by using Net Beans IDE.	20/03/19 27/03/19		TLM5	
		22/03/19 29/03/19		TLM5	

Teaching Learning Methods					
TLM1	Chalk and Talk	TLM4	Problem Solving	TLM7	Seminars or GD
TLM2	PPT	TLM5	Programming	TLM8	Lab Demo
TLM3	Tutorial	TLM6	Assignment or Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
Commencement of Class Work	26/11/2018		
I Phase of Instructions	26/11/18	12/01/19	7W
I Mid Examinations	18/01/19	25/01/19	1W
II Phase of Instructions	28/01/19	30/03/19	9W
II Mid Examinations	01/04/19	06/04/19	1W
Practical	08/14/19	20/04/19	2W
Semester End Examinations	22/04/19	04/05/19	2W

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

Graduates of Information Technology programme will be:

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields.

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PEO 4: Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

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PROGRAMME SPECIFIC OUTCOMES (PSOs):

Graduate of the Information Technology will have the ability to:

1. Organize, Analyze and Interpret the data to extract meaningful conclusions.
2. Design, Implement and Evaluate a computer-based system to meet desired needs.
3. Develop IT application services with the help of different current engineering tools

Dr. S.Naganjaneyulu	Dr. S. Naganjaneyulu	Dr.D.Naga Raju
Course Instructor	Module Coordinator	HOD



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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

Part-A

PROGRAM	: B.Tech. IV Sem., IT- R17 Regulation
ACADEMIC YEAR	: 2018-19
COURSE NAME & CODE	: WEB TECHNOLOGIES & 17CI14
L-T-P STRUCTURE	: 3-0-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: Dr.S.Naganjaneyulu
PRE-REQUISITES	: JAVA PROGRAMMING LANGUAGE (17CI07)

COURSE EDUCATIONAL OBJECTIVE: Students will be familiarized with the tools and *web technologies* necessary for business application design and development. This *course* covers client side and server side scripting languages to develop static and dynamic web applications

COURSE OUTCOMES (COs)

After completion of the course, the student will be able to:

CO1:	Design web pages with HTML & DHTML.
CO2:	Develop user defined tags and transfer data between components by using XML and JavaBeans.
CO3:	Create data driven web applications by applying database connectivity techniques.
CO4:	Design and implement dynamic Web Pages using server side components like servlets.
CO5:	Understand concepts of JSP and struts framework and apply them in solving real world problems.

COURSE ARTICULATION MATRIX (Correlation between COs & POs, PSOs):

CO	Statement At the end of the course, student will be able to	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PSO	PSO	PSO
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	Design web pages with HTML & DHTML.	2	1	3	-	2	1	-	-	-	-	-	1	2	3	2
2	Develop user defined tags and transfer data between components by using XML and JavaBeans.	2	1	3	-	2	1	-	-	-	-	-	1	2	3	2
3	Create data driven web applications by applying database connectivity techniques.	2	2	3	-	2	1	-	-	-	-	-	1	2	3	2
4	Design and implement dynamic Web Pages using server side components like servlets.	2	2	3	-	2	1	-	-	-	-	-	1	2	3	2
5	Understand concepts of JSP and struts framework and apply them in solving real world problems.	2	2	3	-	2	1	-	-	-	-	-	1	2	3	2
1- Slight (Low), 2 – Moderate (Medium), 3 - Substantial (High).																

BOS APPROVED TEXT BOOKS:

T1	Chris Bates, “Web Programming building internet applications”, WILEY Dreamtech, 2nd edition, 2002. (UNITS-1,2)
T2	MartyHall, Larry Brown, “Core Servlets and Java Server Pages Volume 1: Core Technologies“, Pearson, 2 nd Edition, 2004. (UNITS – 3, 4, 5)
T3	Bill Siggelkow, “Jakarta Struts Cookbook”, O'Reilly Media, 2005. (UNIT-5)

BOS APPROVED REFERENCE BOOKS:

R1	Robert W Sebesta, “Programming the World Wide Web”, Pearson Education, 8 th Edition, 2015.
R2	A.A.Puntambekar, “Web Technologies”, Technical Publications, 2009.
R3	Harvey M. Deitel, Paul J. Deitel, “Internet and World Wide Web How to program”, Pearson Education Asia, 5 th Edition, 2008.
R4	Subramnyam Allamraju, Cedit Buest, “Professional java server programming J2EE 1.3 Edition”, Apress Publications, 1.3 Edition, 2001.
R5	Budi Kurniawan, “Struts 2 Design and Programming: A Tutorial”, Brainy Software, 2008.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: HTML & DHTML

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction, Cos HTML: Introduction, Versions,	1	26/11/2018		TLM1	CO1	T1,R2	
2.	Text Formatting Tags	1	27/11/2018		TLM1	CO1	T1,R2	
3.	Lists, Tables,	1	29/11/2018		TLM1	CO1	T1,R2	

4.	Images, links, marquee,	1	03/12/2018		TLM1	CO1	T1,R2	
5.	Frames	1	04/12/2018		TLM1	CO1	T1,R2	
6.	Forms	1	06/12/2018		TLM1	CO1	T1,R2	
7.	CSS: Introduction, CSS Selectors,	1	10/12/2018		TLM1	CO1	T1,R2	
8.	Types of Cascading Style sheets;	1	11/12/2018		TLM1	CO1	T1,R2	
9.	CSS Properties: Text, Backgrounds, Font, Links,Borders, Margins, Cell padding, Layouts	1	13/12/2018		TLM1	CO1	T1,R2	
10.	JAVASCRIPT: Introduction to JavaScript, Datatypes, Variables	1	17/12/2018		TLM1	CO1	T1,R2	
11.	Control Statements, loops in JavaScript. Objects in Java Script	1	18/12/2018		TLM1	CO1	T1,R2	
12.	Dynamic HTML with Java Script, Form validation using JavaScript	1	20/12/2018		TLM1	CO1	T1,R2	
No. of classes required to complete UNIT-I			12	No. of classes taken:				

UNIT-II: XML & JAVA BEANS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
13.	Document type definition,	1	24/12/2018		TLM2	CO2	T1,R2	
14.	XML Schemas,	1	27/12/2018		TLM2	CO2	T1,R2	
15.	Presenting XML,	1	31/12/2018		TLM1 TLM2	CO2	T1,R2	
16.	XML Processors: DOM and SAX.	1	01/01/2019		TLM3	CO2	T1,R2	
17.	JAVA BEANS: Introduction to Java Beans,	1	03/01/2019		TLM2	CO2	T1,R2	
18.	Advantages of Java Beans,	1	07/01/2019		TLM2	CO2	T1,R2	
19.	Bean Example programs	1	08/01/2019,		TLM2	CO2	T1,R2	
20.	Persistence, Java Beans API,	1	10/01/2019		TLM2	CO2	T1,R2	
21.	Persistence, Java Beans API	1	10/01/2019		TLM1	CO2	T1,R2	
22.	EJB introduction	1	17/01/2019		TLM1	CO2	T1,R2	
No. of classes required to complete UNIT-II		10			No. of classes taken:			

UNIT-III: JDBC:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
23.	JDBC: Introduction	1	28/01/2019		TLM1	CO3	T1	
24.	Types of Drivers	1	29/01/2019		TLM1	CO3	T1	
25.	Types of Drivers	1	31/01/2019		TLM2	CO3	T1	
26.	java.sql package - Procedure to establish connection between java applications and database	1	04/02/2019		TLM2	CO3	T1	
27.	Database operations - create,	1	05/02/2019		TLM2	CO3	T1	
28.	Database operations - insert, delete & update using JDBC	1	07/02/2019		TLM2	CO3	T1	
29.	Database operations - insert, delete & update using JDBC	1	11/02/2019		TLM2	CO3	T1	
30.	Database operations - insert, delete & update using JDBC	1	12/02/2019		TLM2	CO3	T1	
31.	Types of Statements	1	14/02/2019		TLM1, TLM2	CO3	T1	
32.	Result Set types.	1	18/02/2019		TLM1, TLM2	CO3	T1	
No. of classes required to complete UNIT-III		10			No. of classes taken:			

UNIT-IV: SERVLETS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
33.	Lifecycle of a Servlet with example	1	21/02/2019		TLM2	CO4	T1	
34.	The Servlet API, javax.servlet package- Servlet	1	25/02/2019		TLM2	CO4	T1	
35.	The Servlet API, javax.servlet package- Servlet Request, Servlet Response, Generic Servlet	1	26/02/2019		TLM1	CO4	T1 & NET	
36.	ServletConfig and ServletContext interfaces with example programs	1	28/02/2019		TLM2	CO4	T1	
37.	RequestDispatcher Interface usage	1	05/03/2019		TLM1	CO4	T1	
38.	The javax.servlet.http package – HttpServlet,	1	07/03/2019		TLM1, TLM2	CO4	T1	

	HttpServletRequest & HttpServletResponse,							
39.	HttpSession,	1	11/03/2019		TLM2	CO4	T1	
40.	Cookie.	1	12/03/2019		TLM2	CO4	T1	
41.	Accessing different databases from Servlet programs.	1	14/03/2019		TLM2	CO4	T1	
No. of classes required to complete UNIT-IV		09		No. of classes taken:				

UNIT-V: JSP & STRUTS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
42.	JSP: Lifecycle of JSP,	1	18/03/2019		TLM2	CO5	T1	
43.	scripting elements,	1	19/03/2019		TLM2	CO5	T1	
44.	Implicit objects	1	21/03/2019		TLM2	CO5	T1	
45.	Directive elements, action elements.	1	25/03/2019		TLM2	CO5	T1	
46.	Error Handling and Debugging	1	26/03/2019		TLM1 TLM2	CO5	T1	
47.	Access database from JSP pages.	1	28/03/2019		TLM2	CO5	T1	
48.	STRUTS: Introduction to Struts, Overview of MVC Design Pattern,	1	28/03/2019		TLM2	CO5	T1	
49.	Struts main Components,	1	01/04/2019		TLM2	CO5	T1	
50.	Controller components (Action, Action Mapping, Action Form Beans, and Struts Configuration files).	1	01/04/2019		TLM2	CO5	T1	
No. of classes required to complete UNIT-V		09		No. of classes taken:				

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
1	JSON	1	18/12/2018		TLM2	CO1	T1	
2	Tag libs in jsp	1	21/03/2019		TLM2	CO4 & CO5	T1	

Teaching Learning Methods

TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM3	Tutorial	TLM6	Group Discussion/Project

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	26/11/2018	12/01/2019	7W
I Mid Examinations	18/01/2019	25/01/2019	1W
II Phase of Instructions	28/01/2019	30/03/2019	9W
II Mid Examinations	01/04/2019	06/04/2019	1W
Preparation and Practicals	08/04/2019	20/04/2019	2W
Semester End Examinations	22/04/2019	04/05/2019	2W

Part - C**EVALUATION PROCESS:**

Evaluation Task	Units	Marks
Assignment– 1	1	A1=5
Assignment– 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment– 3	3	A3=5
Assignment– 4	4	A4=5
Assignment– 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=20
Evaluation of Online Quiz Marks: $C = 75\% \text{ of Max}(C1, C2) + 25\% \text{ of Min}(C1, C2)$	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	40
Semester End Examinations : E	1,2,3,4,5	60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1:	Pursue a successful career in the area of Information Technology or its allied fields.
PEO2:	Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.
PEO3:	Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.
PEO4:	Able to understand the professional code of ethics and demonstrate ethical behavior, effective communication, team work and leadership skills in their job.

PROGRAMME OUTCOMES (POs)

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering Problems.
PO2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1	Organize, Analyze and Interpret the data to extract meaningful conclusions.
PSO2	Design, Implement and Evaluate a computer-based system to meet desired needs.
PSO3	Develop IT application services with the help of different current engineering tools.

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Course Instructor	Module Coordinator	HOD